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# *THE PRECARIOUS REALITIES OF PROFESSIONAL LEARNING.*

*An analysis of professional chat events on Twitter*

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PhD  
The University of Edinburgh  
2017.*

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# Declaration

This is to certify that that the work contained within has been composed by me and is entirely my own work. No part of this thesis has been submitted for any other degree or professional qualification.

Parts of this work have been published as listed in Appendices 3 and 4.

Signed:





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# Abstract

Distributed online discussion events in social media are increasingly used as sites for open, informal professional development, knowledge sharing and community formation. Synchronous chat events hosted on Twitter have become particularly prominent in a number of professional domains. Yet theoretical and critical analysis of these Twitter chat events has, to date, been limited: this thesis contributes to the development of such analysis through a socio-material, network assemblage lens employing trans-disciplinary and multi-method research approaches. This research positions the Twitter chat events as the relational effects of network-assemblages of human and non-human actants.

This thesis explores Twitter chat events with a particular focus on human resource development (HRD) as a professional domain that is widely seen as inherently changeable, fluid, contested and continually emergent. This study examines how practitioner-generated reportage of professional practice interact with the specific functions of Twitter to generate definitions of HRD as a professional field of practice.

A combination of descriptive statistics, Social Network Analysis and analysis of the content and structure of the Chat events has been employed in researching 32 separate chat events with 12,061 tweets. The research methods generated multiple readings of the research data and surfaced different and fluid potential lines of enquiry in to the Twitter chat events. A number of these potential lines of enquiry were then selected as points of entry to 'zoom in' to the data using a Critical Discourse Analysis for a smaller sample of the chat events.

The assemblages of the chat events are collective achievements involving human and non-human actants. The collective effects surfaced in the research problematise (a) the notion of online communities as the product of network ties and (b) the humanist orientations of much of the literature on professional learning.

Within the Twitter chat events, HRD is constructed as a profession in crisis as the traditional bases of professional identity are eroded. The practitioners participating in these events position HRD as increasingly less relevant to its constituent audiences, clients and customers and as locked into organisational assemblages that cut-off the potential for new trajectories for the field to emerge. The chat events normalise technological and societal imperatives that create work intensification, demand committed lifelong learners and venerate precarious relations of employment. Hence, the domain of HRD is enacted as subservient to a new-capitalist discourse that emphasises adaptability, innovation and speed.

A key finding of the research is that, in response to these challenges, the Twitter chat events seek to generate an idealised archetype of HRD bounded by a stable set of dominant practices. These practices emphasise the importance of self-directed learning, autonomous working and the capacities to cope with continuous change. Learning and development is positioned as the responsibility of the individual to enhance their employability within increasingly competitive labour markets. Thus, the idealised archetype of HRD is aligned with conceptualisations of a global post-industrial capitalism and with a notion of 'enterprising selfhood'.

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# Chapter 1: An Introduction

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Open online discussion events in social media are increasingly used as sites of informal professional learning and development, knowledge sharing and community formation. Synchronous chat events hosted on the Twitter platform have become increasingly prominent in a number of professional domains (McCulloch, McIntosh and Barrett, 2011; Wesely, 2013; Megele, 2014; Wilson, 2016). My thesis presents an investigation of two series of Twitter chat events with a particular focus on the professional domain of Human Resource Development (HRD). As a professional domain, HRD is seen by many scholars and practitioners as inherently contested and continually emergent (Lee, 2001, 2010; McGoldrick, Stewart, and Watson, 2001; Stewart, Callahan, Rigg, Sambrook, and Trehan, 2014). I argue that the contested and emergent character of the professional domain of HRD is a particularly interesting one for the study of the effects of the post-industrial knowledge economy on professional work. The HRD practitioners in these Twitter chat events construct the profession as being in crisis: they feel the precariousness common to a broadening range of professional knowledge workers within a neoliberal capitalist social order. This sense of precariousness is exacerbated by the fragility of HRD as a domain of practice within which professional identities are being eroded and employment is increasingly insecure. My research surfaces how these practitioners define the profession of HRD as driven by key forces identifiable with new capitalism, technological determinism, acceleration and the need to continually justify their employability as value-generating knowledge workers in the market-place of their professional domain. The definitions created by these practitioners of the professional domain are framed by an approach that might be described as 'enterprising selfhood'.

A key feature of my research is the examination of how practitioners discuss their professional practices amongst themselves in the Twitter chat events. My analysis exposes the underlying discursive structures that emerge in the chat events and how these generate normative expectations of professional practice. These discursive structures and expectations act as regulatory regimes that territorialise the professional domain of HRD. In turn, the emergence of these regulatory regimes is framed by the functions of Twitter software and by three dominant discourses on: 1) the knowledge economy in relation to the individual worker; 2) a fetishisation of speed; and 3) technological determinism. These three discourses appear repeatedly in both series of chat events. My thesis shows how these discourses shape the Twitter chat events as performative enactments of particular formulations of professionalism and professional practice. Related to the scoping of a professional domain, I investigate the interactions in the events in terms of the formation of online communities. I also investigate the chat events as sites of the practices and performances of professional learning in open online spaces.

Through my analysis, I show in this thesis how the chat events assemble an idealised HRD practitioner as highly networked, self-directing and self-regulating in their learning, working and learning at a pace that is demanded by both their organisations, their colleagues and by wider economic and technological 'forces'. The HRD practitioner as the 'enterprising self' is enacted as possessing the capabilities to adapt to these external forces. The chat events normalise technological and societal imperatives that create work intensification, demand committed lifelong learners while also venerating precarious relations of employment. The Twitter chat events are not sites of resistance to these demands but are, rather, sites where these demands are

enacted and normalised as components of 'being professional'. Hence HRD practice is enacted as subservient to these new-capitalist discourses that emphasise adaptability, innovation and speed (Gee, Hull, and Lankshear, 1996).

My research takes a socio-material perspective that refuses to see human agency within the professional field as isolated from the discursive and material contexts within which it is enacted. My analysis of the Twitter chat events as a 'way in to' the assemblages of the professional domain gives an urgency and currency not available in the current literature. Through drawing together an interdisciplinary mix of research methods, this thesis provides an original and important attempt to produce critical key insights in to how a professional defines herself in the age of social media and in the context of the knowledge economy and networked society.

## Framing my research

This research study is based on my own interests and concerns in informal professional learning. Such professional learning is largely social, highly situated, immediately work related, while also self-directed and self-organised. This suggests a tension between the practices of HRD practitioners within specific organisations and the locus of professional learning and identity for these practitioners that is found in external professional associations and, increasingly, in self-organised networks and learning communities. The Twitter chat events are one example of these networks and learning communities. In particular, I was drawn to these chat events as they provided opportunities to collect data on the interactions between practitioners outside of any explicit and formal research setting and,



therefore, to analyse what these interactions 'do' in terms of defining their domain of professional practice, the formation and maintenance of online community and participants' own professional learning.

The interdisciplinary repertoire of methods used in this research seeks to embrace the complexities of the network-assemblages of the research sites. However, the research is necessarily focused on particular questions of interest and concern that frame and structure my overall research approach. My research works to the guiding purpose of examining professional identity and professionalism in the context of a post-industrial knowledge economy enacted in a digital domain. To situate my research in the Twitter chat events, I am guided by the commonly stated purposes of such events to form learning communities of practitioners working in a shared professional field. So, I initially based my research approach based on the three related research questions of:

1. how is the professional domain of HRD defined and redefined in the events;
2. in what ways do the chat events collectively enact the concept of online community; and
3. how do the events constitute the performance of professional learning and knowledge sharing?

Through adopting assemblage theory, this set of research questions is extended to include investigating processes of assembling the chat events by asking:

4. how do the entanglements of materials, technologies, text and people generate particular structures and patterns of interactions in the events?

In the remainder of this chapter, I provide a brief contextual discussion on Twitter and on Twitter chat events and a brief summary of the remaining chapters of this thesis.

## Understanding Twitter

Twitter was launched in 2006 (Procter, Vis and Voss, 2013) and has been, until recently, one of the fastest growing Social Network Site (SNS) (Lasorsa, Lewis and Holton, 2012; Riedl *et al.*, 2013). However, in the last few years, Twitter's user base has stabilised at around 320 million active users while Facebook, for example, has continued to grow to an active user base of 1.8 billion (Statistica, 2017). Twitter was initially intended as a simple 'updating' service neatly summarised with the question at the centre of the user interface as the Twitter prompt, "What's happening?". From this design intention Twitter became a powerful service through its "ability to broadcast the experiences of ordinary people during social movements and natural disasters" (Murthy, 2013, p.12). Twitter also enables those 'ordinary' people to communicate directly with world leaders, celebrities, commercial and public organisations and social activists (Marwick and boyd, 2011; Murthy, 2013; Schmidt, 2014; Weller *et al.*, 2014). Murthy goes on to highlight that the network connectedness of Twitter is essentially commercial in its motive: as with other SNS the ultimate aim of is to maximise shareholder value. Such value is generated through advertising content and by the accumulation, analysis and selling on of user behaviour data (van Dijck, 2013, loc. 374).

Yet, since its launch, Twitter is increasingly perceived not simply as a tool for the broadcast of information but rather as a platform for interaction and discussion (Honeycutt and Herring, 2009; Ellison and boyd, 2013).

Furthermore, Twitter makes these conversational interactions easily available to the general public to observe as well participate (Page, 2014). Schmidt (2014, p.4) frames the 'publicness' of Twitter in terms of the following/follower relationship as 'personal publics'. This is where communication is organised according to personal relevance and interest, is intended to be conversational and, in turn, generates data traces that form explicit network ties. Therefore, these 'personal publics' are created through the mobilisation of the functions of connectivity embedded in the Twitter software itself.

A post on Twitter is termed a 'tweet', which is a short message of up to 140 characters. The brevity of the message reflects the initial design intent of Twitter as an updating service to be used on mobile devices (Bruns, 2012). Replies to an individual tweet can be made using the 'reply' button which is a public response or by Direct Message (DM) between followers which is visible to just those individuals. A user mention acknowledges a user through the use of the "@" symbol. The 'retweet' function is where an individual tweet is forwarded from one user by another user to that second users personal follower network. In a retweet, the original author is automatically attributed by 'RT@user\_name' (Purohit *et al.*, 2013, p.2439). Unlike replies, user mentions and retweets (RT) do not necessarily indicate a conversation as the use of either of these two functions does not require or necessarily prompt a response (Purohit *et al.*, 2013). The retweet acts to promote particular tweets and can generate short-term trending topics identified through keywords (van Dijck, 2013). So these functional features of Twitter presaged an increased focus on the content of tweets rather than on the users

of Twitter and the relationships between those users.

The final functional feature noted here is the hashtag (#) that is used as a form of signifier to succinctly present a specific tweet as being a contribution to a particular topic. So the hashtag function allows users (Procter, Vis and Vos., 2013, p.198): “to co-create a fluid and dynamic structure within the tweet timeline that facilitates information discovery: anyone searching for the hashtag can see what everyone else is saying about this topic”. Therefore, the hashtag function, in effect, acts as a data aggregator (Jones, 2014) signalling topic-relevance (Reichert-Smith and Smith, 2012) and network membership (Yang *et al.*, 2012).

The main data for my thesis was collected between September and December 2013 since when there have been a number of changes in Twitter. The most notable change involves the introduction of the ‘algorithmic’ timeline (Greenberg, 2016) where an individual user’s Twitter timeline no longer runs sequentially by the time a tweet was posted. Instead, the timeline is generated by a combination of tweets by time and by popularity. However, by using the hashtag function over a short period of time, the chat events are not affected by this change in the timeline sequencing.

Also, since 2013 the number of chat events on Twitter has continued to increase and their use has spread in to supporting new product launches or associated with off-line (or real-world) events. Yet the structure of the events has broadly remained the same to the extent that the structure of these events could be said to be standardised with the main variation being in the number of pre-set questions.

Therefore, while data drawn from 2013 may appear dated in terms of the

perceived fast-moving world of social media, the frameworks of analysis and the findings of my research remain relevant to current practices on Twitter.

While I go on to discuss the socio-material actions and effects of Twitter further in chapters 5, 6, 7 and 8, I would emphasise at this stage that what Twitter *is*, is an effect of the interactions of people and technology. Twitter is constantly and actively made and remade in the intra-actions of user behaviours, hardware, coding, algorithms and visual design, rather than Twitter being a neutral utility or passive instrument.

My research seeks to understand the processes of negotiation, consensus building and boundary-work that goes in to producing, maintaining and evolving definitions of HRD. The focus of my study is on the norms and regulatory regimes of the professional domain that emerge in the Twitter events and so goes beyond describing online behaviours to attempt to explain those behaviours. Such an objective points to the adoption of mixed methods research approaches as discussed by Stephansen and Couldry (2014) with my methods-mix drawing on semiotic and content analysis, qualitative analysis and “basic quantitative analysis” (Stephansen and Couldry, 2014, p. 1215).

## Twitter chat events

Professionally orientated discussion events on Twitter have become increasingly common in recent years (Bingham and Conner, 2010; McCulloch, McIntosh and Barrett, 2011; Wilson, 2016). There are over a hundred regular professional events hosted on Twitter including: #ARchat (business analysts); #brandchat (branding); #edchat (education); #imcchat (integrated marketing communication); #pr20chat (PR and social media); #smbiz (small business); and #talentnet (recruitment industry) (see Gnosis

Media Group, n.d.). The emergence of these discussion or chat events is predicated on both the popularity of Twitter as a SNS as well as the adoption of the hashtag convention as a means of rapid and, at times, spontaneous network or community organisation (Ford, Veletsianos and Resta, 2014). As such, these events are largely defined by digital networking technologies (Jones, 2014).

I have viewed these Twitter chat events as potential 'spaces' to study how HRD practitioners report on and discuss their own practices and so attempt to form and maintain collective discursive repertoires and a "network of shared meaning" (Trehan and Rigg, 2011, p.282). I argue that the discursive repertoires and shared meaning-making of these chat events produce normative expectations of HRD as a domain of professional practice. These expectations privilege the imperatives of organisational performance along with personalised and self-directed learning and a technological determinism as components of an idealised HRD.

I argue in this thesis that assemblage theory provides critical insights in to the dynamics of power-relations in these Twitter chat events. Assemblage theory amplifies how relations of power are generated in the processes of creating discursive stances on the professional domain of HRD. These discursive stances contribute to the creation and maintenance of the boundaries of particular definitions of HRD as a professional domain. In particular, these discursive stances are produced through processes of creating an idealised version of HRD practices while excluding or suppressing alternatives. Assemblage theory generates further insights in to how the dynamics of these stances are entangled in the practices, constraints and possibilities of, in this case, the Twitter platform as text, images, and other material gathered together in the chat events. The chat events can only occur through the

mobilisation of specific functions of the Twitter software. I argue that through these functions the protocols of Twitter generate further gatherings of what Foucault termed a “subtle integration of coercion-technologies and self-technologies” (1993, p.204) that enrol actors to engage with the perceived norms of the Twitter chat events and, therefore, particular enactments of HRD practices.

## Structure of the thesis

### Chapter 2: the conceptual framework

This chapter describes the key theoretical and analytical components of my research. These components involve the interactions between my selected theoretical perspective of socio-material assemblage theory and the dominant discourses that emerge from the Twitter chat event data. Drawing on assemblage theory (Law, 2004; DeLanda, 2006) as an appropriate theoretical perspective for this research, I frame my analytical focus on the coherent and non-coherent multiplicities of the chat events. Therefore, the Twitter chat events can be seen as ‘enacting into being’ multiple simultaneous realities of professional practices and professional community.

However, such multiplicities require a focus or framework to assemble the boundaries of a particular research study. In generating such a framework for this study, I use three dominant discourses that emerged in the Twitter chat events themselves. I discuss conceptualisations of knowledge economy and the networked society and its implications for the practices of professional learning. In doing so, I also explore the fetishisation of speed and its importance in framing both professional practices and the networked society. Entwined in these two dominant discourses is a further discourse on

technological determinism as it effects notions of professionalism and 'realities' of working life. I highlight the multiple assemblages in the constructs of these three dominant discourses while the later chapters of this thesis highlight how these multiplicities are translated in the Twitter chat events.

### Chapter 3: literature review

The literature review is structured to reflect the stated concerns of the Twitter chat events: exploring a specific domain of professional practices, in this case, Human Resource Development; the development and maintenance of online professional communities; and knowledge generation and sharing as professional learning. The chapter begins with an examination of the definition of human resource development (HRD) as a domain of professional practice and object of scholarly enquiry. Drawing on McGoldrick, Stewart and Watson's (2001) metaphor of HRD as a hologram and recent socio-material conceptualisations of professionalism (Fenwick, Nerland and Jensen, 2012; Mäkitalo, 2012), I examine the elusiveness of a common definition of HRD in relation to broader discourses of the knowledge economy, the networked society and acceleration.

In exploring the notion of online community, I argue that different method-assemblages generate different assemblages of community that, in turn, emphasise different elements and effects of online community. Thus online community on Twitter is positioned in terms of complex gatherings of network relations, common discursive structures and technological and material effects.



Finally, I explore the literature on socio-material perspectives on vocational and professional learning practices. I explore how practices of professional identity making and notions of 'being a professional' are being shaped by the emphasis on individualisation and employability as responses to the effects of the precariousness and vulnerabilities of the knowledge economy and network society.

## Chapter 4: Methodology

This chapter describes the methods assemblage constructed for this study and justifies the mixed-methods research design for investigating the Twitter chat events. The research uses a socio-material ontology, as discussed in Chapter 2, as the basis for generating an assemblage of research methods designed to embrace the complexities of the Twitter chat events. In particular, the research approach is designed to avoid the reductionism of traditional social science approaches while analysing the multiplicities generated in the chat events (Law, 2004).

The repertoire of research methods I use in the methods assemblage are: descriptive statistics; social network analysis; content analysis (Belnap and Withers, 2008), Discourse Structure Analysis (Holmer, 2008) and Critical Discourse Analysis (CDA) (Fairclough, 2003). These different methods generate multiple 'grids of analysis' (Nespor, 1994) that are applied to identify and amplify different elements and effects of the research data (Law, 2004; Markham and Lindgren, 2012). This approach is a key component of an original research framework for analysis of the emerging assemblages of professional identities in the digital domain.

The initial stage of my analysis employed descriptive methods which function to identify particular aspects of the data of interest that are then subject to CDA. The repertoire of methods of this study enabled the focus of analysis to shift between the whole assemblage of the research sites and the different instances of interactions in individual chat events. Hence, I employ a 'network sensibility' (Markham and Lindgren, 2012) that emphasises making sense of the complexities of the data through iterations of exploring and amplifying different components of the data. The transparency in the process of 'cutting the assemblage cake' is an important part of understanding and reflecting on the findings and conclusions of my research.

#### Chapter 5: The structure and characteristics of the Twitter chat events

As discussed in Chapter 4, the initial analysis of the event data generates multiple readings of the research data and surfaces different and fluid lines of enquiry in to the Twitter chat events. Drawing on descriptive statistics, Discourse Structure Analysis (Holmer, 2008), content analysis (Belnap and Withers, 2008), the notion of addressivity (Honeycutt and Herring, 2009) and Social Network Analysis, I investigate the processes of assemblage that generate the chat events. Through this analysis, I suggest a content-led conceptualisation of online interaction that identifies how coherence is generated in the discursive structures of the chat events. This idea of content-led or discursive action-based coherence-making, woven together with the other components of the methods assemblage, especially Critical Discourse Analysis, is explored further in the following chapters of my thesis.

#### Chapter 6: Constituting the professional domains of HRD

In this chapter I argue that the Twitter chat events generate and enact particular realities of the professional domain of HRD. These realities amplify

particular aspects of HRD practices that, for example, privilege personalised and self-directed professional learning and technological determinism. Therefore, the framing of HRD as contributing to the improvement of corporate performance positions the profession in alignment with the broader discourses of learning in the knowledge economy and the idealisation of the self-directed and self-programmable knowledge worker. Entangled with this idealised workforce is a privileging of social technologies as enabling and performing the idealised open, visible, fluid and non-hierarchical professional learning networks (Sie, Bitter-Rijkema and Sloep, 2009) exemplified by Twitter chat events themselves.

The fluidity of the boundaries of HRD is not just an issue of the representation of HRD as a domain of practice and knowledge as suggested in the metaphor of the hologram. Rather, I argue that the multiple realities of HRD assembled in the chat events are highly contingent, situated and often temporary. But at the same time, the chat events strive to identify and enact an idealised and de-situated HRD archetype. This emerging nascent HRD archetype enacted in the performance of the chat events is networked, distributed, technologically dependent, relevant, effective and distinct from mainstream HRD practice. My research shows that the HRD domain as created in these chat events produce tensions between: the status of the profession as the provider of learning and development in an organisation and the idealisation of the self-programmable/ self-directed learning employee; and between the acknowledgement of the situated nature of HRD practices and the wider expectations of the possession of a common body of professional knowledge.

## Chapter 7: The Making of Community

This chapter surfaces and problematises alternative enactments of online communities in the Twitter chat events. These different enactments are surfaced through the different research methods used in this study. The multiple renderings of community as an outcome of network ties surface the fragility and the temporary nature of community in these chat events. This fragility is entangled with the effects and actions of the Twitter functions and software. I go on to argue that a sense of community is an outcome of particular orders of discourse (Fairclough, 2003): firstly, as a distinct style involving repetitions of keywords and co-words, images and user-mentions that stabilise discursive stances through a processes of accumulation of discursive resources supporting particular positional stances. In this style of communication, direct disputation between participants is avoided.

Secondly, building on the notion of ‘otherness’ surfaced in Chapter 6, the events mobilise discursive actions to generate in-group presence and out-group ‘otherness’. I argue that the chat events assemble multiple ‘non-coherent’ realities (Law, 2004) at a granular level without destroying a sense of community at a larger-scale. I problematise the conceptualisation of online communities as involving relative stability accomplished via the mobilisation of particular discursive structures to argue that online communities are simultaneously stable and unstable. I argue that the analysis of online communities involves both the study of instability at the level of discussion sequences in symmetry with the analysis of the aggregated tweets at the larger-scale. Stability is an effect of accumulations of material-discursive resources that over-ride the effects of any one discussion sequence (Wilkie, Michael and Plummer-Fernandez, 2015). Thus the Twitter chat events work to reconcile the erosion of stable professional identities on one hand with the

opportunities associated with the self-programmable knowledge worker in creating and recreating an identifiable professional domain.

## Chapter 8: Assembling learning

In this chapter, I investigate the processes of assembling the Twitter chat events as socio-material gatherings of professional learning. I examine two main aspects of assembly: firstly, how the chat events assemble performances of the 'enterprising self' (du Gay, 1996) and Castells' self-programmable worker (2000); secondly, how the interactions of text, multi-modal artefacts, discursive actions and structures, genres and styles, technologies and data traces are entangled in assembling the chats as learning events.

The Twitter chat events enact professional learning as the performance of individual capacities for change and network expertise necessary for the self-programmable professional of Castells' network society. I argue that the chat events assemble a particular conceptualisation of professionalism in post-industrial economies that is characterised by the notion of 'enterprising selfhood'.

The second section of this chapter addresses the opportunities of assemblage theory in examining how professional learning occurs "from the ground up" (Wesely, 2013, p.305). The production of regulatory regimes is examined as emerging in the interactions of the functions of Twitter and in the discursive actions and structures of the events as, what I term, 'instructional talk'. This discursive style generates particular processes of ordering and stabilising the chat events. Finally, the facilitation of learning in the chat events is examined as an accomplishment of discursive and technological actions distributed across a range of social and material actors. The performative enactment of

enterprising selfhood and self-programmable workers works to align the profession to a neo-capitalist ideology that is contested in other aspects of the chat events and critiqued in the wider literature on professional learning.

## Chapter 9 Conclusion

In the concluding chapter, I summarise what I see as the contribution of my research expressed in the arguments of the preceding chapters. The earlier chapters contribute a synthesis of the literatures on socio-material and assemblage theory in relation to the analysis of the professional domain of HRD, the concept and enactment of online communities and the performance of professional learning in open online environments such as Twitter. This synthesis has been framed in relation to the dominant discourses identified as emerging from the chat events of: the knowledge economy and network society; the fetishisation of speed; and technological determinism. These dominant discourses are entangled with a normalisation of work intensification and precarious relations of employment found in the Twitter chat events as key components of 'being professional'.

Finally, this chapter provides a personal reflection on the experience of operationalising assemblage theory within the context of professional learning in an open online environment. While other research approaches would have been possible, this study demonstrates how my particular methods-assemblage provide specific insights that emphasise dynamic, fluid and unstable processes of professional identity-making and learning in a network context.



# Chapter 2: Theoretical Perspectives

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## Introduction: assembling a lens for the research

The purpose of this chapter is to set out the conceptual framework for my study: that is the key theoretical and analytical components of my research. The conceptual framework has been assembled through iterative processes of the collection and analysis of both relevant literatures and of the empirical data.

As discussed in chapter 1, my study explores the Twitter chat events as socio-material assemblages that enact multiple and ambiguous instances of professional learning. These assemblages of the Twitter chat events are entangled with three dominant discourses that emerge repeatedly in both series of events. These dominant discourses concern: 1) the knowledge economy and the individual worker; 2) the effects of speed and pace in work, organisations and wider society; and 3) technological determinism. I am particularly concerned with how these dominant discourses permeate the chat events in terms of defining a professional domain of human resource development (HRD), generating online community, and performing practices of learning and knowledge sharing in open online spaces. The knowledge economy, as an assemblage, generates numerous different effects and I concentrate on two of these: a sense of precariousness and vulnerability for highly skilled knowledge workers and the implications of that sense for defining the professional domain of HRD.



This chapter commences with a discussion of socio-material assemblage theory and Actor Network Theory (ANT) or, more specifically, After ANT (Law and Hassard, 1999; Law, 2004). as the theoretical perspectives I have adopted for this study of the Twitter chat events. In the following discussion, I emphasise the capacity of assemblage theory to engage with the complex social and material entanglements of practices without attempting to abstract or reduce them (Schatzi, Cetina and Savigny, 2001; Law, 2004; Antonacopolou, 2006; Markham, 2013).

My adoption of socio-material assemblage theory came about as I turned to the materiality of practices as a key component in making sense of the Twitter chat events. From this view, material ‘things’ are integral elements of practices and “contribute to the patterning of the social” (Law, 1992, p.382) so neither the ‘material’ or the ‘social’ are reduced to positions of determinacy (Law, 2004). Material objects are not passive instruments of human beings, but are active participants in socio-material practices in their own right. It became clear to me that the Twitter chat events are co-constituted via the specific technical functions of the Twitter platform as it shapes the social interactions of these events. The patterns of social interactions also direct how the technical functions of platform are performed in the chat events themselves.

In acknowledging a symmetry between the social and material, I was drawn to the arena of Actor Network Theory. I understand Actor Network Theory (ANT) as a gathering of ideas and concepts of the socio-material rather than a coherent and cohesive theory in itself (Bergquist *et al.*, 2008). As Alcadipani and Hassard (2010, p.423) state:

*Although the ‘T’ of the ANT acronym stands for ‘Theory’, it is better understood as a methodological approach. In this way, ANT*

*can be seen as an approach to the field that offers analytical tools  
that can be applied to narrative knowledge ...*

Yet, as an 'approach to the field', ANT is frequently characterised as difficult to define or summarise. What brings these 'analytical tools' together is the focus in ANT on relations between socio-material actors. A key distinguishing feature between what Sørensen (2009, p.68) terms 'Classic ANT' and the range of approaches of 'After-ANT' is in the conceptualisation of the relations between actors. Classic ANT focuses on the concept of the network and by the detailed tracking of relations between actors - people, texts, technologies and objects of various sorts - as a means to trace how actors influence the world (Fenwick and Edwards, 2010). However, Classic ANT faces a number of criticisms as overly descriptive, failing to engage with the normalisation of existing relations of power and too focused on the creation of network stability and immutable mobiles (Law and Hassard, 1999; McLean and Hassard, 2004; Alvesson and Skoldberg, 2009). The diversity of After-ANT emerged in part as a response to these and other criticisms of Classic ANT. As I discuss in this chapter, I was drawn towards the plethora of concepts loosely labelled as 'After-ANT' that focuses on fluidity and emergent adaptability of socio-material practices (Law, 2009) and the generation of multiple and temporary realities (Law, 2004; Fenwick and Edwards, 2010).

The conceptual framework discussed in this chapter is centred on an After-ANT notion of assemblage and, in particular, assemblage theory as discussed by Law (2004). Law's (2004) approach to assemblage theory is concerned with how specific assemblages promote particular realities while demoting others. It is this emphasis on simultaneously amplifying and dampening diverse subjectivities that attracted me to assemblage theory as an analytical perspective on the Twitter chat events. Assemblage theory is an approach to making sense of the processes that promote particular definitions of the professional domain while suppressing others; that enact instances of online community; and that perform certain practices of learning while ignoring others. Furthermore, assemblage theory does not treat these privileged

realities as fixed and consensual but, rather, as contested and dynamic, involving continual making and unmaking of realities and of alternative (and better) realities (Law, 2004, p.107). Assemblage theory, as with the socio-materialism of ANT, renders any distinction between ontology and epistemology as obsolete: realities are enacted in co-constitutive relations. As I became more familiar with the material collected from the Twitter chat events, this emphasis on the contested and inconsistent amplification and suppression of unstable 'realities' resonated increasingly strongly for me.

In my analysis of the assemblages of the Twitter chat events, I also draw on two other key aspects of ANT: symmetry and translation. Symmetry is the avoidance of subject-object dualism that privileges the human while avoiding technological determinism (Miettinen, 1997). So ANT understands 'actors' as being either human or non-human active participants within assemblages. ANT has been described as a sociology and translation (Latour, 2005) where translation refers to the interpretation and reinterpretation of knowledge or meaning as a mechanism of aligning, ordering and stabilising assemblages (Mitev, 2009; Fenwick and Edwards, 2010). I argue that it is the ordering effects of translation that amplify and suppress different realities and, therefore, generate ongoing relations of power.

Given the textual and discursive premise of the chat events, from an early stage in my research, I focused on discursive practices. I used Critical Discourse Analysis (CDA) to analyse firstly, the processes of assembling coherence through mobilising particular 'orders of discourse' (Fairclough, 2003). Such orders of discourse surface mechanisms of translation and alignment in the generation of assemblages and the production of social ordering in the chat events; and secondly, how discourses are mobilised to amplify, suppress, other, or assimilate different actors within an assemblage (Van Leeuwen, 2008). CDA not only surfaces dominant discourses but also

alternative and competing discourses and so are key components in socio-material relations generating multiple realities. I argue that the social practices of discourse, as with all social practices, are co-constituted in socio-material entanglements involving texts, people, devices, and technologies (Barad, 2003; Law, 2004; Hakkarainen, Engeström and Paavola, 2009).

The final main component of the conceptual framework of my research is concerned with the analysis of relations of power. Here, I draw on Foucault's theories on discourse and power and, in particular, his notion of 'governmentality' (Foucault, 1988). Power is an effect of the intra-actions of assemblages that stabilise particular activities as legitimate and others as illegitimate and, in turn, amplifying some and suppressing other realities. Both Fairclough and Foucault's understanding of discourse analysis treat discourse as a concern of social practice rather than of linguistics (Rogers, 2012). The realities of HRD as a domain of professional practice is ontologically co-constituted in the discursive practices that direct and govern norms of behaviour and discourses.

The conceptual framework of my research emerged through iterative rounds of data analysis and the exploration of different theoretical perspective. Through these iterations, I became increasingly drawn to how three dominant discourses emerged across both series of chat events and how these assemble different realities of the professional domain, of senses of community and of practices of learning. In the next section of this chapter I go on to explore the concept of the knowledge economy as an assemblage with many diverse elements and effects. I position the chat events as responses to the precariousness of modern working life and the destabilisation of the professional domain of HRD and of the assemblages of 'professionalism'.

In relation to the challenges of the knowledge economy, I explore the simultaneous enactment and fetishisation of speed within the chat events. I distinguish between the value placed on speed within the refrains of the chat events and the acknowledgement of the challenges the fetishisation of speed generates in terms organisational and personal change. Technology is constituted as a key component of the emergent notion of the knowledge economy and the acceleration of social change and the pace of life. The final section of this chapter explores the notion of technological determinism to argue that this discursively frames the creation of a number of alternative assemblages in the chat events. I argue that the discourse of technological determinism is mobilised as it constitutes 'organisational realities' and simultaneously constrains and expands the agencies of professional practitioners. Both speed and technology are treated as independent and 'natural' forces that are outside human control and cannot be resisted nor held account for the effects they produce and the radically different HRD practices they demand.

## A theoretical positioning

In the first part of this chapter, I consider issues relating to the theoretical perspectives I draw on for this study and discuss how I was drawn to socio-material assemblage theory as the key perspective for my study. Initially, my theoretical stance was based on my interest in knowledge and understanding as practical acts with a starting position based on pragmatism as an epistemology of action (Cook and Brown, 2005). In pragmatism, understanding of the world is constructed through both knowledge as a cognitive resource (to know 'facts') and knowing 'how' to apply knowledge using skills or competence (knowing how to, for example, manage a team or

change a tire on a car) (Kivinen and Ristela, 2003; Spender, 2005). This latter concept of 'knowing how' is situated in the theoretical area of practice (Bourdieu, 1977; Antonacopolou, 2006).

Therefore, in the practice perspective, knowledge is perceived in terms of relational processes of knowing and practicing (Cook and Brown, 2005). Practices act to both reinforce specific constitutive rules or norms of practice and to generate new knowledge through problem solving (Geiger, 2009).

The focus on 'practice' has spread across the social sciences in recent decades covering a wide range of activities from the very local, ephemeral and specific to 'meta practices' such as the 'practice of science' (Rouse, 2007, p.516). Research approaches and interests associated with practice studies are as varied and include ethnomethodological descriptions of local practices (Nicolini, 2010); cultural aspects of practices (Bourdieu, 1977); practices that enact and subvert organisational policies (Gherardi and Nicolini, 2000); power relations within practices (Contu and Willmott, 2003); technology mediated work practices (Schultze and Orlikowski, 2004); practicing science (Pickering, 1992; Latour, 1999) and the performativity of subjectivities (Jackson, 2013a). Across these studies, the binary distinction between reality and knowledge of reality (Law, 2009), between agency and structure or the individual and the social are subverted (Wagner, Newell and Piccoli, 2010).

Material 'things' are integral components of practices and co-constitute social actions in that neither the 'material' or the 'social' are reduced to positions of determinacy (Law, 2004). In other words, material objects are not passive instruments of human-beings but are active participants in socio-material practices.

# Socio-materialism

## A socio-materiality of practice

My initial interest in this research was with a focus on what happens in open online learning environments, that is, with action and practice (Gherardi, 2000; Nicolini, Gherardi and Yanow, 2003). Practices are social and material components coming together in performative and relational contexts (Wagner, Newell and Piccoli, 2010). So practices involve complex interactions of language, collaboration, people, artefacts and control and are, therefore, inherently socio-material (Gherardi, 2000; Tuomi, 2000; Nicolini, Gherardi and Yanow, 2003; Geiger, 2009; Guzman, 2009). As such, the practice perspective undermines the dominant notion of a subject-object dualism that defines human and non-human worlds as qualitatively different (Miettinen, 1997). Socio-material practices are enacted through a symmetry between the social and material with the definition of a practicing 'actor' shifting from an exclusively human label to a "semiotic definition – an actant – that is, something that acts" (Latour, 1996, p.373).

I have adopted a socio-material perspective to frame the Twitter discussion events as effects of gatherings of human and non-human actants performing particular practices of identity, community and learning. As I suggested earlier, social practices occur as social and material assemblages and so I now turn to a discussion of how assemblages are formed or emerge.

## Construction in assemblages

Assemblages focus on complexities of the intra-actions between components. The term intra-action is used in contrast to 'interaction' as interaction

supposes pre-existing and independent entities coming together to effect one another. Intra-action is based on the inseparability and constitutive interdependence of entities. It is through intra-actions within an assemblage that “the boundaries and properties of the ‘components’ of phenomena become determinate and that particular concepts become meaningful” (Barad, 2003, p. 815). It is only through intra-action that components exist within that assemblage. A component cannot exist independently and so cannot exist outside of an assemblage. It is through this co-constitutive interdependence that the same components may generate different effects or outcomes in the same or in different assemblages.

Therefore, in this thesis I do not focus on the properties of the different elements of a practice assemblage, such as, in this case, the properties of Twitter or of professional learning. Rather, I am concerned with how Twitter, or how professional learning, are performed in to being in the chat events. So Twitter, or professional learning, are situated in the particular practices they are parts of, and so are different in those different contexts (Wagner, Newell and Piccoli, 2010, p.279).

Therefore, for this study, I was drawn to the socio-material formulations of assemblage theory associated with Actor Network Theory (ANT) and after ANT (Law and Hassard, 1999; Law, 2003; Latour, 2005). Central to the concept of ANT is that of a network, yet the term ‘network’ is used in specific manner that extends beyond interactions or exchanges between nodes (Mützel, 2009). Fenwick and Edwards, (2010, p.12) refer to a network in the context of ANT as an “assemblage of materials brought together and linked through processes of translation that perform a particular function”. That function may be understood as the effects or impacts of a network assemblage whether intended or conscious or planned or not. For example,



Latour (1994, p.41) discusses speed bumps as network assemblages that are: “full of engineers and chancellors and lawmakers, commingling their wills and their story lines with those of gravel, concrete, paint, and standard calculation”. It is by such assemblages that co-constitutive intra-actions take place (Johri, 2011).

The effects of an assemblage depend on the context of assembling where, for example, formal education is assembled in the context of an institution while informal learning is assembled in a context of ‘not an institution’. Therefore, professional learning takes in place in the context of specifically situated environments and practices (Fenwick and Edwards, 2010, pp.12-13).

ANT is concerned with the stabilisation of network-assemblages through processes of translation. The term ‘translation’ in ANT is used in two ways: firstly, it concerns the interpretation of knowledge and knowing. Examples of this can be seen in various studies of ‘workarounds’ in the implementation of information systems (Mitev, 2009) or in studies of workplace safety (Gherardi and Nicolini, 2000). Network-assemblages evolve as different actors’ interests are translated and retranslated to align with one another and generate ordering effects that stabilise networks (Fenwick and Edwards, 2010, p.9). This echoes Gherardi's (2006, p.34) view of practice as a process of ordering and normalising where she defines practice “as a mode, relatively stable in time and socially recognised, of ordering heterogeneous items into a coherent set”. Secondly, the processes of translation are also processes of simplification as complex underlying network-assemblages are represented by a single actant – that is, the underlying assemblage is said to have been ‘punctualised’. The simplification process can be seen in the ordering effects of, for example, an organisational routine (Bergquist *et al.*, 2008) or as a community of practice (Fox, 2005) that is clearly bounded. Together, these

two processes generate the coherence of an assemblage.

Translation is operationalised through combinations of (a) intermediaries acting as signposts leading entities from one intra-action to another without acting on them. Intermediaries may include software, documents or human bodies (Depauw, 2008); and (b) mediators that can transform entities and the network through translation (Harman, 2009, p.15).

Deleuze and Guattari (2008) discuss the emergence of coherence in assemblages as occurring through processes of territorialisation and deterritorialisation. Territorialisation occurs as assemblages generate degrees of internal coherence through activities and the effects of those activities. As internal coherence further develops the assemblage is increasingly territorialised. As an example, Deleuze and Guattari talk of a territorialising professional 'refrain' or motif that bounds professions and marks particular functions within a context as specifically of that profession (2008, p.321). In other words, these refrains perform as mediators as discussed above, that may generate, reinforce and stabilise networks, so mediators may have territorialising (or deterritorialising) effects. For example, the 'training needs analysis' and training plan, are motifs of the professional domain of HRD. Processes of territorialisation may also occur simultaneously with processes of deterritorialisation and destabilisation. So the training needs analysis can be destabilised in to the performance improvement plan that, in turn, draws in multiple professional domains such as operations management, organisational analysis, six-sigma, organisational development, change management and so forth. Czarniawska (2004, p.783) suggests that actants in an assemblage: "... must also continually form new connections. Such connections are forged during the process of translation, in which words, numbers, objects and people are translated into one another".

The focus of my study is the investigation of the practices performed by people and by 'things' in the producing of the Twitter chat events. As Edwards (2010, p.11) states: "...Enactments gather the world as particular things and objects. ... Differences are not simply about matters of opinion and truth, but ways of experimenting and gathering".

The Twitter chat events can be seen as 'enacting into being' multiple simultaneous assemblages: performing the Twitter discussion events themselves as well as performing different realities of learning and development professionals and different contexts of practice. So different but co-present assemblages generate different realities as "ways of knowing in tension" (Law, 2004, p. 191). Stabilising or generating coherence in an assemblage is achieved as particular realities become more prominent and visible than others. My study is concerned with how particular multiple realities are emphasised while others are ignored or 'othered' between different network assemblages of the Twitter discussion events. For example, the discussion event participants enact themselves as a high performing and innovative group of professionals contrasted with the slow, ponderous and orthodox 'traditional' HRD practitioners or with other HRD practices or with a genericised and negative 'management' class.

An important aspect of the Twitter chat events is in the prominence of text and discourse in the performances of the events and in the enactment of, for example, the HRD professional domain and the distinct community of practitioners gathered in to the chat events. In the next section, I examine the function of language and text in socio-material assemblages.

## Language, text, inscription and discourse

The network assemblages of Twitter are dominated by textual practices that can be framed as speech acts or communicative actions. As with any other practice, discursive practices are highly situated within specific assemblages and cannot be disentangled from their circumstances of creation and ongoing performance (Rouse, 2007, p.536).

Discursive practices are productive and generative components of practice assemblages. For example, in discussing Latour and Woolgar's (1986) analysis of the practices of scientists, Law (2004, p.28) highlights the mobilisation of particular discursive strategies that seek alignment with preceding scientific papers, standard bodies of knowledge inscribed through procedural protocols or expectations set within scientific instruments. Thus discourse and text are mobilized and translated as components of practice to generate ordering effects (Gherardi, 2006). Power relations in network-assemblages are enacted through these processes of translation and persuasion (McLean and Hassard, 2004; Fox, 2005) encouraging particular capacities to be mobilised between actants.

What I am interested in here is what discursive practices are performed in the discussion events, how they are performed and what effects they manifest in terms of surfacing, evolving, enforcing and undermining constitutive rules related to professional identity-making, community formation and professional learning. In particular, my concern lies with two facets of discourse (Heracleous, 2006): firstly, communicative actions based on interactions between individuals to, for example, share experiences or build relations; and secondly, deeper discursive structures that 'guide' and regulate those communicative actions. It is these deeper discursive structures that act

to surface, evolve and maintain the constitutive rules or norms of specific practices including the Twitter chat events.

Such discursive structures (Heracleous, 2006) or resources (Rigg, 2005) or repertoires (Eriksson and Kovalainen, 2008) may also be understood as discourse genres. A genre involves "typified rhetorical actions based in recurrent situations" (Miller, 1984, p.151) that are socially recognised with some degree of consistency of form (Orlikowski and Yates, 2009, p.543). The purposiveness of genres suggests that they have the capacities to be combined in novel ways and are not deterministic. So genres act as mediators generating thematic coherence through the "organisation of a set of meanings in and through an event" (Bloome *et al.*, 2005, p.33). Fairclough, (2003) links genres to emergent structures of discourse events generating shared expectations and norms of participation. So genres are important mechanisms of stabilisation and territorialisation in network assemblages and provide a focus for investigating the emergence of social ordering in the Twitter discussion events and the territorialisation of professional identities.

Discursive and textual practices, actions and structures, are not simply manifested in the content of written words and images. Practices are also manifested in technologies and materials in what Law (2004, p.29) described as "ecologies of inscribed devices". Such devices may have particular properties but also generate multiple capacities to produce new kinds of effects (Hakkarainen, Engeström and Paavola, 2009). The inscribed devices, their properties, capacities and effects are not prescribed but rather co-constituted intra-actionally through practice (Barad, 2003).

In this study, I approach the network-assemblages of the Twitter chat events as part of broader assemblages of socio-material discursive practices. By

focusing on these practices, I have drawn on ANT's focus on the practices of translation in network formation and development – the uses of persuasion, coercion, seduction and resistance (Fenwick and Edwards, 2010) – that provide a mechanism for new insights in the critical dynamics of power relations.

## Circulations of power in assemblages

My concern with the dynamics in the assembling of domains of professional practice is framed by the production and reproduction of legitimated and illegitimated activities and behaviours. Domains of professional practice are assembled in the emergence of disciplinary discursive frameworks that direct and 'govern' norms of behaviour and discourse across networks. Domains of professional practice can no longer be said to be formalised as the property of particular institutions (Castells, 2000b). As Ringrose states (2011, p.602) assemblages are enmeshed in and with "relations of power" that may be surfaced through drawing on Foucault's (1988) theories regarding the on-going entanglements between discourse and power. In particular, I draw on Foucault's notion of 'governmentality' as a concern with the 'government' of conduct of both the self and of others (Lemke, 2001).

A key starting point of governmentality is the rejection of traditional notions of power as a possession belonging to 'the powerful' people and institutions. Power is the effects of dispersed activities, relations, interactions and entanglements of the dynamic complexity of assemblages rather than some external force or structure (Jackson, 2013b; Farías, 2014). So power is conceived in terms of the generation and direction of what are perceived as possible or legitimate actions and activities. From an assemblage theory perspective, power can be seen as a capability of the components of any given

assemblage and so questions of domination and coercion are framed as effects generated in that assemblage. Power does not explain an effect or outcome but needs to be explained as an effect or outcome of components intra-acting in assemblages. From this perspective, power emerges from the iterative construction and reconstruction of assemblages through discursive material practices (Barad, 2007). Such practices generate both restrictive and expansive effects that stabilise existing relations and networks, and generate new possibilities for new assemblages.

In the specific case of Twitter, this idea of power may be observed as ways of interacting that are normalised through the intra-actions of the platform features, protocols and rules with the emergence of particular discursive repertoires that, in turn, enact particular subjectivities of membership of a Twitter chat event 'community'. 'Governmentalities' produces a particular frame of understanding and ways of talking about professional practice (Reich and Hager, 2014) within a community. Drawing on ANT as a means of analysing actual assemblages (Thompson, 2012a), power is enacted in processes of enrolling and translating as network assemblages are formed (Fenwick and Edwards, 2010). Actors seek to translate a "set of possibilities" to enrol other actors within an assemblage (Toennesen, Molloy and Jacobs, 2006, p.7) generating the effects of stabilising those network relations (Fox, 2005). So, discursive structures and the platform functions of Twitter may be mobilised to amplify particular text objects while dismissing or silencing others. The processes of translation and enrolment are mobilised as means of articulating collective notions of legitimate and illegitimate practices in the events. This enactment of social ordering acts to territorialise particular practices as being within the professional domain (McLean and Hassard, 2004; Fox, 2005; Fenwick and Edwards, 2013). Yet these same processes have

the capacities to realign and change practices and habits and so erode or deterritorialise the boundaries of a professional domain.

Discursive repertoires, structures and actions define what or who is included within a community and what is excluded, banished or ignored (Hall, 2001 cited in Kelsey and Bennett, 2014). As Fairclough (2003, pp.41-42) argues, power relations are concerned with the discursive treatment of difference, the generation of 'constitutive rules' (Bourdieu, 1977) and the establishment of discursive regulatory regimes (Foucault, 1979). Van Leeuwen's (2008) semantic inventory of the treatment of actors in a discourse is useful here in terms of identifying the range of discursive practices to include, enrol, promote, other, suppress, objectify, assimilate or exclude actors. The discursive practices of constructing differences and maintaining boundaries of what is 'in' and what is 'out' are the enactments of power (Jones, Woodward and Marston, 2007). Therefore, as Thompson (2012a) notes, assemblage effects include forces that preserve and evolve an assemblage and those that have the effects of pulling apart and disentangling an assemblage: that is, to deterritorialise. So all assemblages simultaneously generate capacities of stability along with the creative potential of "being something else" (Beighton, 2013, p.1301). Johansson (2015) uses the label of 'fabulation' for discursive practices that break from the 'majority discourses' to engage in discourses of new possibilities, new practices assemblages. But fabulation may generate negative and destructive, as well positive and productive, new possibilities (Ringrose, 2011).

Jackson and Mazzei (2012) emphasis on assemblage theory as a processes of 'becoming' that replicates Lee's (2003) description of HRD as being in a state of constant 'becoming'. This privileging of processes of 'production' over the 'product' (Beighton, 2013) provides an appropriate platform for the analysis



of HRD as a professional practice. The divergence between stability and new possibilities is also reflected in the competition identified by Lawless *et al*, (2011) between differing discursive constructs of HRD. As Wenger (1998) argues, heterogeneous components cohere through a common sense of practice established through symbols, routines, words, genres. Yet such discursive repertoires are historically grounded and that contingency makes them inherently ambiguous outside that specific historic context.

## Research in to the messy entanglements

Constructing the repertoire of methods employed in this study and detailed in Chapter 4, is a process of generating a network assemblage of this specific study: a 'method assemblage' (Law, 2004). As a social practice itself, research cannot perform the 'God trick' (Miettinen, 1997) of being external to the world being studied. Rather, my research gathers its own assemblage in intra-action with the assemblage of the Twitter discussion events. As Markham (2013, no pagination) states, a method assemblage

*...seeks to compel, relate, or explore, understanding the inherent open-endedness of this act in contextual space and time. The key would be to add transparency, acknowledging that one is engaging in sense-making rather than discovering or finding or attempting to classify in a reductionist sense.*

Yet in performing this exploration, I am also engaging in selecting, ignoring or "amplifying" particular realities or data to generate thoughts and discussions rather than a conclusion or generalizable findings (Law, 2004; Markham, 2013).

The research and understanding of these complex socio-material network assemblages has often been achieved through the combination of methods

and approaches. A socio-material perspective has, for example, been combined: with Clegg's theory of power in the study of information systems (Mitev, 2009); with Critical Discourse Analysis in the study of a project management methodology (Raisanen and Linde, 2004); or combining ANT with institutional theory in studies of municipal government (Czarniawska, 1997).

As gatherings of network-assemblages, the Twitter chat events involve the event websites, the text and multimodal resources posted on these, the organising group and individual human participants, network and internet connectivity, the Twitter applications used, web browsers, the functions of Twitter (especially the hashtag and retweets), internet protocols such as http, computers, locations, notions of learning and development as a profession and practice, urls and links, professional standards, commercial enterprises and investors in social technologies, hardware, software, and connectivity. Some of these components are more visible in the assemblages while others are 'hidden' behind the presentation of the discussion events as discrete, bounded and unified events.

In treating the chat events as socio-material I have been mindful of the symmetry in social and material intra-actions and that textual utterances as well as material components are not neutral or innocent (McInerney, 2009). Twitter acts on the discussions through the mobilisation of inscribed practices such as retweets (RTs), replies and the aggregating function of the hashtag as well as the (at the time) absence of the functions to view tweets within their conversational threads. Furthermore, Twitter has a wider commercial and socio-economic function inscribed in to the software to varying degrees of transparency (van Dijck, 2013).

My conceptual framing of this research is founded on the notion that the Twitter chat events assemble in to being multiple realities of their professional domain of interest, of the events as manifestations of online communities and of professional learning. These multiple realities are assembled in relation to the three dominant discourses I identified: on the knowledge economy and the knowledge worker; on new capitalism and the fetishism of speed; and on technological determinisms in professional practices. The assembled realities are not stable nor homogenous in and between the two chat series or within individual discussion topics. Rather, the discourses of the chat event assemblages are contingent, fluid, ambiguous and heterogeneous. In framing the chat events as assembling precarious realities, I argue that these events have the potential to generate alternative trajectories and assemblages of the professional domain of HRD.

In the remainder of this chapter, I attend to the context of assembling (Johri, 2011). As previously noted, three dominant discourses emerged in the chat events that amplify particular aspects of the situational complexity of the events. These discourses are broadly associated with conceptualisations of a global neoliberal capitalism (Buscher, 2014). The chat event discussions generated particular concerns with: the knowledge economy; speed and the acceleration of working lives; and a concern with the extent of professional agency of the event participants in relation to technological determinism. In the following section of this chapter I discuss these three dominant discursive as components of the assemblages of the Twitter chat events.

## The Knowledge Economy and the individual

The concept of the knowledge economy is itself a discursive assemblage materialised in public policy discourses (OECD, 1996; Asgeirsdottir, 2005; European Commission, 2010; Uppenberg, 2010; Cable and Department for Business Innovation and Skills, 2014) and inscribed in, for example, organisational classification of knowledge intensive firms (Alvesson, 1993) and in translation of Standard Industrial and Occupational Classifications (SIC and SOC codes). The knowledge economy is understood by the OECD (OECD, 1996) as drawing together four key pillars: (i) economic and institutional regimes that promote innovation systems; (ii) new technologies; (iii) human capital; and (iv) enterprise dynamics. I am concentrating here on the human capital pillar, as developed through education and training, as the key component of the adaptive capacity required for enacting a knowledge economy. Thus knowledge workers, as a form of capital, are positioned in this assemblage as being in the centre of the post-industrial, knowledge-based economy. Individual employees are increasingly acknowledging that their employment is precarious and unstable (Tams and Arthur, 2010; Gregg, 2011; Buscher, 2014) despite precariousness of employment being more intensive in lower status occupations (Kretsos and Livanos, 2016). The recognition of precariousness among professional occupations may be an effect of the increase in outsourcing, the erosion of traditional and transparent paths of professional progression and societal and public policy expectations on professionals being able to navigate successfully through increasingly complex labour markets (Tams and Arthur, 2010; Herbert and Rothwell, 2016).

I draw in what follows on Robertson's (2014) conceptualisation of the knowledge economy that emphasises a shift in power relations in favour of commercial enterprises while destabilising other institutions, such as professional associations, and professional learning (Mulcahy, 2012).

## A fluid economic context

Over the last few decades, Northern hemisphere economies have seen profound changes as they shift towards post-industrial economies (Warrington, 2008). These post-industrial assemblages have been labelled as the 'new capitalism' (Sennett, 2006); the 'weightless economy' (Quah, 1999); the 'creative economy' (Howkins, 2001) or the 'knowledge economy' (OECD, 1996). What is common across these various terms is the constitution of economic value as increasingly derived from ideas, intellect, 'know who' and 'know-how' (Spender, 2005) through the "man [sic]-made brain power industries" (Giarini and Malitza, 2015, p.120). In this way the knowledge economy, and its emphasis on ideas, skills, innovation, globalisation, and new technologies, is assembled as the means of economic success (Moisio and Kangas, 2016).

Co-emergent with the development of the knowledge economy, has been the overlapping assemblage of the network society (Castells, 1996; van Dijk, 2006). The network society depends on technological infrastructures enabling information processing and exchange (van Dijk, 2006). The knowledge economy and network society assemblages both emerge with, and are co-constitutive of, social and economic changes that emerged from the 1960s onwards. Rather than being semiotic and materially constituted "imaginaries" (Robertson, 2014, p.273) arising from the mobilisation of particular institutional discourses, these assemblages generate particular and multiple realities of social and economic life.

## Human capital, education and knowledge

The emphasis on intangible assets, tacit and hard to pin down knowledge, competence and creativity places people, human capital, and their creative capacities at the heart of successful enterprises and regions (Florida, 2002). These components of the knowledge economy are mediated by other assemblages such as national education policies (Robertson, 2014). Hence the knowledge economy assemblage articulates education policy in terms of enhancing human capital and promoting ongoing economic growth. For example, a recent UK Government White Paper on Higher Education (BIS, 2016, pp.8-9) states:

*Graduates are central to our prosperity and success as a knowledge economy... Research indicates that a 1% increase in the share of the workforce with a university degree raises long-run productivity by between 0.2% and 0.5%; and around 20% of UK economic growth between 1982 and 2005 came as a direct result of increased graduate skills accumulation*

Similarly, the European Commission places education at the core of its approach to regional economic and social development in the Europe 2020 Policy (European Commission, 2010). On a broader socio-economic perspective, the then Secretary of Education of the USA, Arne Duncan stated that (Department of Education, 2010):

*Education is still the key to eliminating gender inequities, to reducing poverty, to creating a sustainable planet, and to fostering peace. And in a knowledge economy, education is the new currency by which nations maintain economic competitiveness and global prosperity.*

These quotes are examples where specific problems of economic growth, social equalities and sustainability are translated in to “educational solutions” (Simons and Masschelein, 2008, p.395) that frame our understanding a range of issues including, as I will argue, those of employability and professionalism.

I would like to discuss two important aspects of this gathering together (Edwards, 2010) of employment, education and growth to assemble the knowledge economy. The first concerns other ‘realities’ of the nature of employment growth in advanced Western economies’. Rather than employment demanding capacities for knowledge generating and creative work, the demand for routine work appears to be stable over the last few decades (Findlay, Kalleberg and Warhurst, 2015). Yet this apparent stability in routine work suppresses the changes that have occurred within that occupational category. As Frey and Osborne (2017) highlight, mass automation has reduced routine work in the skilled occupations of manufacturing while the demand for low-skilled service occupations has continued to grow. They state that employment growth in developed, knowledge based economies as being driven by growth in low-skilled and in high-skilled occupations (involving non-routine cognitive work, see Dvorkin, 2016) while ‘skilled’ occupations in the middle have seen the sharpest declines (Frey and Osborne, 2017, p.258). So advanced economies involve alternative realities of economic activities that persist alongside and enmeshed with the ‘knowledge economy’.

The growth in ‘immaterial labour’ or non-routine cognitive work that generates the ideas, products and services of the knowledge economy remains the preserve of distinct groups of professionals. The participants in the Twitter chat events, as HRD practitioners, can be regarded as a particular

group of professionals engaged in non-routine cognitive work. In the context of the knowledge economy, this is a privileged group of high value knowledge workers. Yet they also, as I shall discuss later, perceive themselves to face intense pressures and vulnerabilities in work.

The second aspect is concerned with the nature of knowledge and, in particular, knowledge generation and diffusion. Knowledge and knowing is not a static property, rather, it is co-constituted and emergent in highly situated assemblages. It is in this situated contingency of a specific organisational or work-practice assemblage that “highly developed learning is necessary in order to keep knowledge current; an organisation’s learning capability must keep pace with the changes in the competitive environment” (Clarke, 2001, pp.192-193). So the knowledge economy generates increased demand, opportunities and challenges for ongoing development of the knowledge, skills and competences of those working in knowledge occupations (Korunka *et al.*, 2015). These ongoing practices of development require appropriate enabling assemblages (Abildgaard and Nickelsen, 2013, p.71) aligned with other practice assemblages. However, it is here that we see a misalignment between the demands of the knowledge economy and the assemblages of formal education provision.

While Clark (2001) focuses on organisational learning and capacity for change, the imperatives of perpetual learning and renewal are also applied to the individual worker and especially the individual knowledge worker. The capacity for skills and competence development of the knowledge worker is often realised in engagement with enabling assemblages based on novel problem-situations that generate informal, incidental and vicarious learning opportunities (Milligan *et al.*, 2015) rather than through formal education. Such learning in practice depends on self-reliance (Wesely, 2013) and



inclusion in enabling assemblages that draw in wider knowledge creating communities (Thompson, 2010).

## Networked and individual

A significant recent change in our understanding and experiences of the world comes through the recognition that human activity is increasingly taking place in networked contexts (Castells, 2000b; van Dijk, 2006; Donnelly, 2011; Scholz, 2013). These network-assemblages and the complexities they bring can be seen in changes in organisational structures and working and learning practices as they become more networked and distributed. The rising prominence of networked contexts is also associated with discourses on the complexities of sustaining competitive advantages through pooling specialist knowledge in inter-organisational collaborations (Ribiere and Tuggle, 2010; Swart and Kinnie, 2014) and on mobilising expertise through outsourcing (Tams and Arthur, 2010). Economic value and competitive advantage is to be found in the generation and circulation of knowledge and expertise within and between firms.

Assemblages of the knowledge economy translate employability from being an issue of public policy, industrial strategy and organisational demand to one of individual talent, adaptability and personal knowledge and competence (Simons and Masschelein, 2008). Therefore, the knowledge economy amplifies particular subjectivities of the employable and self-programmable knowledge-worker. This subjective position is produced by enabling assemblages that privilege individual commitment to lifelong learning (Abildgaard and Nickelsen, 2013).

Tams and Arthur (2010) looked to research on the changing relations between employees and employers to find a spreading of temporary organisational

forms previously common only in specific sectors such as the film industry (Grabher, 2002; Bechky, 2006) that privileged labour mobility, flexibility and entrepreneurship. Such reconfigurations of the context of employment produces an individualisation of relations between an employee and employer that privileges competition for and between high-demand expertise and results in the breakdown of traditional notions of job tenure.

### Precariousness

The network society (Castells, 2000b) is increasingly characterised as producing a vulnerable workforce beset by a range of pressures. Buscher (2014, p.224) talks of a nomadic workforce “trapped in mobility whether they are high earning professionals with bulimic work patterns or part of a new ‘precariat’” of low skilled manual and service jobs.

As Lewis (2007) argues, employers are in an increasingly strong position in the labour market assemblage due to the growing number of people entering the labour market with higher levels of skills, knowledge and competence at the same time as many jobs are being deskilled through routinisation and automation. Drawing on Braverman’s (1974) approach to the analysis of the labour market in the USA, Lewis goes on to predict an increased polarisation between those supported by an enabling assemblage to compete for high skilled work and those who the labour market assemblage limit to routinised, often service orientated, work. So both knowledge and low skilled workers face similar issues of precariousness and vulnerability associated with part-time, fixed-term, temporary and on-demand work (Cockayne, 2015).

Professional and knowledge workers are in increasing competition with one another for high value work which places a premium on possessing and demonstrating relevant competence and skills. These include the

competences for learning in complex problem situations (Margaryan, Littlejohn and Milligan, 2013) requiring novel and creative solutions (Sloep, 2014) synthesising a range of subject disciplines (Giarini and Malitza, 2015). This trend suggests a reconfiguration of the assemblages of the boundaries of professional disciplinary domains, professionalism (the conduct of being a professional) and professional learning.

### Professional learning

Alongside an increasing preciousness of employment, has been a destabilisation of professional institutions as validators of professional competence (Nerland and Karseth, 2015). As individualised and distributed work contexts are increasingly prevalent, so externally imposed norms of conduct through, for example, professional institutions are replaced by self-regulation by the individual and by their own networks of accountability (Evetts, 2011). So the established assemblages that validate professional competence become increasingly unstable and contested. While the notion of professional competence as situated and contingent is not new – and can be seen in Schon's (1984) reflective practitioner – the experiences of the erosion of workplace structures, including in human resource development, have destabilised established notions of professional learning

So knowledge workers are expected to continually update their learning and to adopt new knowledge and practices to stay employable and successful within the knowledge economy (Liu, 2004; Korunka *et al.*, 2015). In intra-action with this expectation, assemblages of 'professionalism' and professional identity generate increasingly strong emphasis on a commitment to lifelong learning as a component of being a professional. Furthermore, the focus on individual responsibility for maintaining their status as being

employable is entwined with making less visible the assemblages working to shape individual lives by opening particular opportunities and closing others (Buscher, 2014).

Specialist knowledge associated with particular professional domains becomes meaningful only as “a situated, collaborative accomplishment, inherent and anchored in an infinite variety of social practices” (Rennstam and Ashcraft, 2013, p.4). As a result, assemblages of professional learning embrace a tension between trajectories of individualisation (Fenwick, 2013) and the trajectories of distributed knowledge sharing in occupational networks (Malcolm and Plowman, 2014). Through this tension, Tams and Arthur concluded that to maintain and enhance their position in the labour market, individual workers (2010, p.631): “need to engage in external networks and build personal connections that made knowledge transfer and new learning possible”.

The chat events generate contested and partial constitutions of what it means to be a HRD professional in the context of the precariousness of the knowledge economy. I argue in this thesis that the Twitter chat events mobilise discourses of the knowledge economy to validate a particular idealised HRD practitioner and to position a ‘traditional’ HRD domain as compromised and devalued. I discuss further in Chapter 6 how the tensions generated between this idealised and the compromised constructions of HRD are used to assemble HRD as a professional field in crisis.

## The fetish of speed

The assemblages of the knowledge economy are enmeshed with other assemblages of acceleration and speed (Wajcman, 2015). Reflecting Giddens' (1990) characterisation of modernity as a barely controllable juggernaut traveling through space, Wajcman (2015) argues modern capitalism generates a fetishisation of speed. This fetishisation is based on an assumption that speed is a marker of progress regardless of direction or destination.

### Acceleration

Wajcman (2015) identifies three key components of acceleration: technological acceleration; accelerated pace of life; and accelerated social change. I am concentrating here on technological acceleration as it interfaces with experiences of the intensification of work and the erosion of boundaries between work and non- work time and place. Technological acceleration relates directly with an accelerated pace of life and accelerated social change. The three components of the assemblages of acceleration are enmeshed together to generate diverse effects of pace and speed that transfer in to other assemblages.

### Experiences of technological acceleration

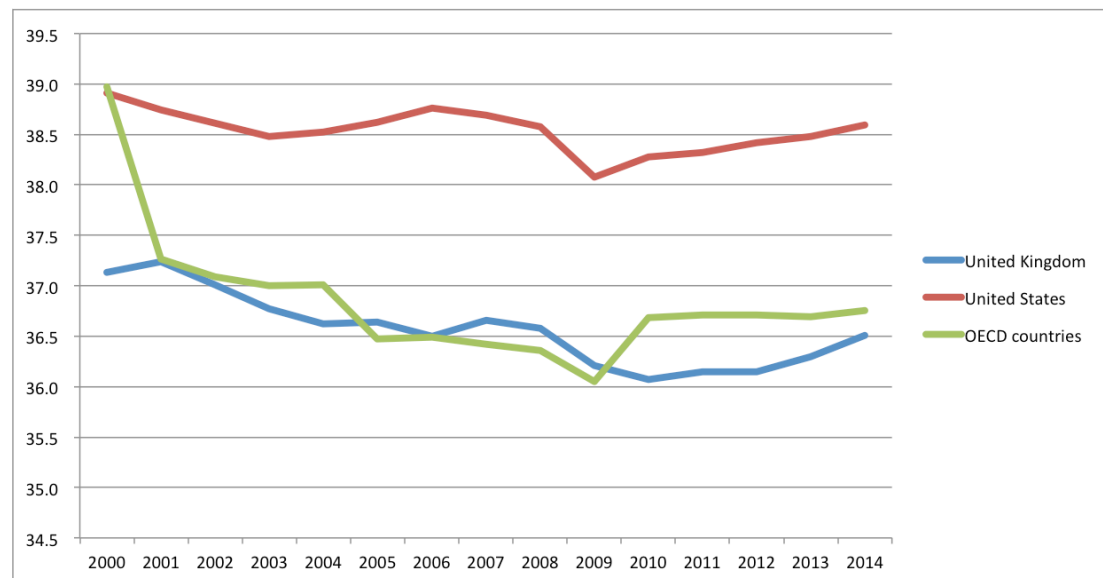
Technological acceleration refers to the ways in which technological change has generated capabilities to work, travel or communicate at ever increasing speeds. This is accomplished through road and rail networks, and jet planes, developments of information communication technologies, the spread of broadband and related infrastructure. While often presented in positive terms as increasing non-work or leisure time, such technological changes are also entangled with 'addictions' to increasing speed and connectivity (Wajcman,

2015). An important effect of technology can be seen in the erosion of the boundaries of 'work' and 'non-work' creating what Gregg (2011, p.2) terms professional 'presence bleed'.

The permeability of the spaces, places of timing of work and non-work positions ICTs as sources of both personal autonomy and flexibility as well as generating effects of work intensification, pressure and stress. Gregg's notion of presence bleed refers to the effect of (mainly) mobile technologies and connectivity in blurring professional and personal identities. Ubiquitous connectivity and the portability of technological devices generates expectations or assumptions that, particularly professional, work can and will take place anywhere. For Gregg, these assumptions along leads to a compulsion on the part of the worker to be working regardless of time or place.

So presence bleed contributes to a general sense of an accelerating pace of life and of 'being harried' (Wajcman, 2015) among workers. This sense of being harried is a common workplace discourse with "many people feel as if there are not enough hours in the day and that people perceive that they are working longer and harder than ever before" (DeVoe and Pfeffer, 2011, p.665). Similarly, Gregg relates the experience of networked workers with a "'to do' list that seems forever out of control" (Gregg, 2011, p.2). While Buscher (2014, p.244) talks of 'immaterial labour' as deterritorialised and mobile in terms of where and by whom that work may be done. Both Gregg and Buscher present networked labour as enabling increased individual professional autonomy and normative expectations of flexible and demand-driven work patterns unconstrained by the temporal work patterns of industrialisation structured around the eight-hour work-day.

Yet the evidence supporting the perceptions that work has intensified in recent decades is somewhat ambiguous (DeVoe and Pfeffer, 2011). Evidence from the OECD for 2000 - 2014<sup>1</sup> indicates a stability in the weekly hours worked in USA and a slight decline in the UK while the OECD countries have seen a larger decline in hours worked between 2000-2014.



**Figure 1: Average full-time weekly working hours**

The UK Chartered Institute of Personnel and Development (CIPD, 2013) found a declining trend in annual actual working hours in the UK since the 1970s (with a slight increase in the late 1980s to the early 1990s). The report also notes that surveys on work intensity found little evidence of increases in workers feeling under pressure. However, there was a clear trend of an increasing perception of being required to “work very hard”. Despite the empirical data, work intensification is a consistent refrain in both scholarly and practitioner literature (Lewis, 2007; DeVoe and Pfeffer, 2011; Fischer and Reuber, 2011; Korunka *et al.*, 2015; Svarc, 2015; Sommerlad, 2016).

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<sup>1</sup> <https://stats.oecd.org/Index.aspx?DataSetCode=ANHRS>

## Acceleration of social change

Alongside technological acceleration and the accelerated pace of life, Wajcman, (2015) identifies accelerated social change as a core component of modern society. Here she is referring to broader social and economic effects such as the accelerated circulation of capital manifested in, for example, just-in-time delivery of goods (Rosa, 2013) or in High Frequency Trading in the financial markets. Accelerated social change is also associated with institutional instability including, as already discussed, in the professions and in new organisational forms. For example, the destabilisation of institutionalised notions of professionalism has already been discussed earlier in this chapter, while organisational structures have also changed. Organisations are increasingly acknowledged as becoming more networked and distributed in response to the complexities of sustaining competitive advantage (Ribiere and Tuggle, 2010; Tams and Arthur, 2010; Swart and Kinnie, 2014).

The overall effect of acceleration draws together in the notion of space-time compression as a defining feature of current social life (Morley, 2014). Castells (1996) refers to ICT's as generating 'timeless time' where communication and data flow both endlessly and immediately. Similarly, Morley (2014, p.41) refers to experiences of modern life as "all at oneness" that in turn fits with Giddens' metaphor of the nearly uncontrollable juggernaut of modernity. It is the assembly of this juggernaut of modernity that is intimately entwined with technology and technological change.

## Technological determinism

As can be seen in the discussions on the knowledge economy and in the fetishisation of speed, the role of technology is a key concern in these



dominant discourses. Furthermore, the constitution and experiences of the Twitter chat events themselves are intimately bound up in the relationship with technology.

## Defining technological determinism

Technological determinism positions technological change as 'the' driving force of social change (Potts, 2008). Technological determinism is where technologies are seen as independent entities that cause social change and, as noted previously, that technology driven social change is, de facto, progress. In socio-material terms, technology is, therefore, an immutable mobile: the properties and functionalities of technologies are independent of any give situation and can move from assemblage to assemblage without changing. As immutable entities, technologies are not enacted, shaped or contested and so they stabilise network-assemblages (McInerney, 2009). Furthermore, technological determinism asserts that immutable technologies then shape and direct the emergence of network-assemblages around them. Yet, as discussed earlier in this chapter, no component of an assemblage can be independent, or exist outside, of an assemblage. So 'technology' cannot be an immutable mobile but rather is co-constituted in intra-actions with other components in any given assemblage.

The term 'technology' commonly refers to an assemblage, or many assemblages, involving people, material, equipment, text, dialogue and institutions (Wajcman, 2015, p.31). Wouters *et al.*, (2008, p.320) describe technology as the "discursive processing of embodied experience" rather than as an independent and stable entity. So technology is not reducible to a mere 'thing'.

However, technology appears as recognisably similar across different assemblages of socio-material practices and so appear to be immutable. But what these technologies do or perform and produce varies across different assemblages. As I argue in this thesis, the Twitter technology and its different functions performs very differently in the chat events compared to the performance of Twitter in other contextual assemblages. de Laet and Mol (2000) argue that this adaptability and fluidity as constituted across different assemblages – the same object but different – is a key element of a ‘successful’ technology. So assemblages of technology may perform as ‘mutable’ mobiles.

Technological determinism has been subject to numerous critiques that reassert the importance of the human in social change. Taken to the extreme, such critiques have ended in the formulation of a social determinism (Potts, 2008) where only the material is constituted in interaction with the social. Technological or social determinism both suffer the reductionism and simplification that Latour and Law sought to avoid in their arguments for actor-network and (After ANT) assemblage theory. As discussed earlier, assemblage theory argues that social practices of change and material technologies emerge from complex intra-actional relations. Neither the ‘material’ or the ‘social’ are reduced to positions of determinacy (Law, 2004) but both are active participants in socio-material practices. Human and non-human components of assemblages should be treated in symmetry as both have agency in generating outcomes through the “co-adaptation of interdependent phenomena” (Beighton, 2013, p.1297).

The understanding of social reality as constituted in socio-material and symmetrical assemblages necessitates a concern with agency. Rather than locating agency or agential power in any particular human or non-human

component of an assemblage, agency is an effect generated by an assemblage that is intersubjective and relational (Bhatt and De Roock, 2013). Bingham (1996, p.647) states that the agential effects in assemblages are highly vulnerable, unstable and “achieved only by continual performance (and only for the duration of that performance)”.

Technological determinism is a persistent feature of practitioner and other actors’ accounts of organisational change (Wajcman, 2015) and more specifically in education and training (Selwyn, 2012) as well as in broader social change (Wyatt, 2008). Castells’ notion of the network society as presented in his earlier work (2000b) was criticised as being underpinned by a technological determinism (Stehr, 2000): that the processes of individualisation described as the effects of the network society were determined by the adoption of information and communication technologies. Technological determinism provides a simple (Wyatt 2008) or at least non-complex, explanation of social changes. This reductionism appeals to notions of ‘common sense’ (Selwyn, 2012) by reflecting a lack of interest in, or understanding of, how technologies are assembled and whose interests these assemblages serve (van Dijck, 2013). From the notion that technology is not neutral (McInerney, 2009; van Dijck, 2013), technological determinism, as itself an assemblage, has multiple meanings and effects and is used for different purposes. Hence, Wyatt (2008) identifies four ‘types’ of technological determinism: justificatory; descriptive; methodological; and normative.

Justificatory technological determinism refers to when technological determinism is used to justify a, often managerial, decision for changes such as reorganisations, business process changes, redundancies and downsizing or relocations. In such cases, technological determinism is mobilised as a

means of closing down discussion of, or challenges to, that particular decision (Stirling, 2008; Dotson, 2015). In this view, technology is something 'the social' should align itself to and where technological change creates 'progress'. The discourses of technological determinism are mobilised as new trajectories are generated within existing assemblages.

Descriptive technological determinism: Wyatt (2008, p.174) uses this form of technological determinism in reference to academic research contexts where scholars identify, describe and then mainly reject the technological determinism they find in the scholarly work of others. Similarly, methodological determinism refers to instances where technological determinism is used as a starting point in the analysis of particular social phenomena. As Wyatt states (2008, p.175): "My provocation here is that our guilty secret in STS is that really we are all technological determinists. If we were not, we would have no object of analysis: our *raison d'être* would disappear". So, as I discuss later in this thesis, my own research is 'tainted' by a methodological technological determinism.

Wyatt's final form of technological determinism is the normative form. This refers to where technologies have become so large, complex and ubiquitous that there is little space left for human agency. Normative technological determinism sees ethical values being overtaken by a technological and instrumental logic of efficiency and productivity (Bimber, 1990) whereby technology cannot be held account for the effects attributed to it and so it 'black-boxed' or 'punctualised'. Such a normative determinism can be seen in Castells' (2000b) representation of the internet as both universal and instrumental in its production of particular forms of capitalism (Stehr, 2000).

Technologies are often discussed in either optimistic or pessimistic terms depending on the effects being attributed to them. Ross and Collier (2016, p.18) discuss this framing of technology with reference to Hands' (2011) positioning of technology as either breaking with or enhancing dominant structures of capitalism. This view draws on an optimistic/ utopian or pessimistic/ dystopian trajectories of technologies that is a key facet of the reductionism of technological determinism (Oliver, 2011).

While I argue that technologies are co-constituted in the intra-actions of people, practices and materials in material-semiotic network assemblages, technological determinism is a consistent motif in the Twitter chat events. Technology is framed as a determinant of organisational realities, occupational practices and of the existence and activities of these specific Twitter 'gatherings'. The discursive structure of technological determinism is mobilised in constituting and contesting the professional practices of HRD, in the enactment of the community and in the discussion and performances of learning and knowledge sharing during the chat events. However, technological determinism is a particular "discursive processing of embodied experience" (Wouters *et al.*, 2008, p.320): thus technological determinism is one of many socio-material network-assemblages that are generated in the Twitter chat events.

## Conclusion

This chapter examines assemblage theory as an appropriate theoretical perspective for this research and the framing of my analytical focus on coherent and non-coherent multiplicities of the chat events (Law, 2004). Within this framing, the Twitter chat events can be seen as 'enacting into being' multiple simultaneous assemblages: performing the Twitter chat

events themselves as well as performing different realities of learning and development professional practices and different contexts of practice.

However, such multiplicities require a focus or framework to assemble the boundaries of my research study. In generating such a framework for this study, I use the three dominant discourses that emerged in the Twitter chat events themselves as discourses: on the knowledge economy; on the fetishisation of speed and on technology as deterministic. The knowledge economy and the networked society effect conceptualisations of professional identity and practices of professional learning. Entangled with conceptions of the knowledge economy, speed and acceleration are seen as both positive and challenging effects of modernity. Technology is a key component of the realisation of the knowledge economy and networked society and the acceleration of social change and the pace of life. The discourses of technological determinism are seen to shape emerging new forms of professionalism and professional learning. In this chapter I emphasised the multiple assemblages in the constructs of these three dominant discourses while later chapters of this thesis highlight how these multiplicities are translated in the Twitter chat events.

The following chapter examines the scholarly literature on the four main questions of interest:

1. How the common professional domain of HRD is constituted;
2. How online community is enacted;
3. How professional learning and knowledge sharing is performed; and
4. how do the entanglements of materials, technologies, text and people generate particular structures and patterns of interactions in the events?



# Chapter 3: Literature Review

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## Introduction and overview

This literature review begins with an examination of the identification and definition of human resource development (HRD) as a professional practice and as an object of scholarly enquiry. Within the overall framework of this research, these areas of concern are analysed from a perspective of complexity, drawing on assemblage theory (Law, 2004).

HRD was first identified as a distinct organisational activity in the 1970s (Swanson and Holton III, 2001) yet since then a common definition of HRD has proved elusive. While the lack of a common definition is seen as a weakness of HRD by some (McLean and McLean, 2001), others see in this flexibility and adaptive potential, a source of strength for HRD research and practice (Lee, 2010; Lee, 2001). Drawing on McGoldrick, Stewart, and Watson's (2001) metaphor of a hologram along with extending the 'linguistic turn' in HRD research (Francis, 2007) and recent socio-material conceptualisations of professionalism (Fenwick, Nerland and Jensen, 2012; Mäkitalo, 2012), I examine the fluidity and permeability of the boundaries of the domain of professional HRD practice. I argue that HRD is defined in terms of diverse and situated practices that are entanglements of discourses, actions, material artefacts and technologies. Such entanglements are mediated through the discursive and material practices of the Twitter chat events.

However, the idea of a core and stable body of knowledge is a common expectation of both practitioners and the wider public in identifying a



professional domain (Mäkitalo, 2012). The status of being a professional is often assumed to including possessing that specific core body of knowledge. HRD actors engage in discursive and interactional practices seeking to establish particular repertoires and normative expectations regarding the knowledge requirements that both constitutes and reproduces the particular professional identity of an HRD professional.

The contested and fluid nature of the HRD domain is amplified by wider assemblages that produce the dominant discourses discussed in Chapter 2. Here I argue that these dominant discourses reflect the competing trajectories between individualisation and atomisation of professional workers and the expectations that professional workers are situated within professional networks and communities. These networks and communities perform the functions of establishing a professional field and the validation of individual professional competences within that field. I review the somewhat limited literature on Twitter chat events in terms of the enacting of specific domains of practice and the performance of particular professional identities.

Extending the notion of collectively constituted professional fields, I investigate the literature on online communities in general and communities on Twitter more specifically. I argue that different method-assemblages generate different assemblages of community that, in turn, emphasise different elements and effects of online community. Thus online community on Twitter is positioned as a complex gatherings of network relations, common discursive structures and actions and technological and material effects.

Finally, I examine socio-material and assemblage based perspectives on professional learning. I consider the implications of understanding processes

of the assembling or gathering of social and material components as practices of learning. I examine how assemblages of the knowledge economy, technological determinism and the emphasis on speed and space-time compression are entangled with notions of professional learning.

## HRD: a practice and semiotic perspective

It is widely recognized that defining the professional domain of HRD is problematic (Lee, 2001; Gold *et al.*, 2010; McGuire, 2011; Ruona, 2016; Russ-Eft, 2016). The label of ‘human resource development’ is mainly used in academic contexts to refer to a specific domain of enquiry that is itself ill-defined (Gold *et al.*, 2010). Others argue that HRD is a constantly expanding domain of practice (Stewart and Sambrook, 2012) which in turn generates such a breadth of definition as to render the term itself meaningless (Lee 2001, 2010). Some authors cite the lack of a widely accepted definition of HRD as a strength of the domain (Lee, 2001) while others see this as a hindrance to both scholarly analysis and to the development of professional practice (McLean and McLean, 2001; Walton and Valentin, 2013) due to a resulting lack of conceptual coherence and empirical rigour (McGuire, 2011).

HRD can broadly be described as a concern with vocationally orientated learning and development. Nolan and Garavan (2015, p.91) in their investigation of HRD in small and medium sized businesses, found that relevant research papers rarely explicitly defined HRD. Instead, reference was made to ‘training’, ‘learning’, ‘competence development’ or ‘management development’. These terms align with the general practice of HRD professionals to describe their profession as ‘learning and development’ or ‘organisational development’.

In their analysis of the definitions of HRD, McGuire, O'Donnell, Garavan, and Murphy (2001, p.7) summarize the two broad 'schools' of HRD theory: a unitarist and utilitarian US School and a more pluralist European School (Figure 2). This binary approach to the analysis of HRD is used here as a pragmatic mechanism for the structuring of discussions on the theories and practices of HRD.

U.S School	European School
Developmental focus	Strategic focus
Managerialist bottom-line approach	Interpretative Holistic approach
Emphasis on learning processes	Emphasis on skills acquisition
Organisational orientation	Individual orientation
Structured learning methodology	Philosophy for investing in people
Utilitarian outlook	Humanist outlook
Directly managed	Indirectly managed
Outcome focused	Process focused
Unitarist perspective	Pluralist perspective
Formal/ instructional	Informal/ formal
Cognitive view of learning	Constructivist view of learning

**Figure 2: Two Schools of HRD theory**

The unitarist approach of the US School (Garavan, Gunnicle, and Morley, 2000) emerges from a broadly economic discourse that is mainly concerned with HRD as an instrument for performance improvement within an organisation (Corley and Eades, 2006). In contrast, the European School is arguably more concerned with humanistic and emancipatory notions of learning (Trehan and Rigg, 2011).

In an overview of what Ruona terms the “definitional angst” (2016, p.553) of HRD, the dominance of key elements of HRD of learning in the context of the workplace with the aims of improving individual and organisational performance and effectiveness were confirmed. Yet despite this seeming coherence, Ruona also identified the domain of HRD as broad, diverse and unstable and transdisciplinary in practice.

Indeed, HRD, as a field has historically been defined by practice rather than specific theoretical concepts (McGoldrick, Stewart and Watson, 2001, p.347). The orientation towards practice reflects that of Dirkx’s statement that “At the heart of the field of HRD ... is professional practice” (2008, p.264) and that HRD research should be grounded in the “narrative of practice” (2008, p.266). From this standpoint, HRD as a domain of both practice and enquiry is founded on pragmatism and driven by an epistemology of action (Cook and Brown, 2005) where knowledge of the HRD domain is concerned with knowing ‘how’ rather than ‘knowing that’ (Kivinen and Ristela, 2003; Spender, 2005). So HRD is concerned with situated action involving relationships with other actors, working with and through specific operating procedures, organisational policies, normative expectations, physical settings, available materials and technologies. As such, HRD practice can be understood in terms of being an emergent property of a specific assemblage of entangled social and material actors: what Czarniawska (2004) termed an action-net.

The disputed nature of HRD as assembled professional domain is grounded in this emphasis on practice (Lee, 2001; McLean and McLean, 2001). HRD practices continue to evolve by ‘drawing in’ an ever increasing range of concepts such as: lifelong learning; the psychological contract; employee

engagement, etc. while also reflecting changes in work contexts such as the expansion of the contract workforce (Lee, 2001; McGoldrick, Stewart and Watson, 2001; Callahan and De Davila, 2004). Yet the contested nature of HRD suggests that the field of HRD is engaged in working to develop forms of normative expectation or 'constitutive rules' (Bourdieu, 1977). Thus, McGoldrick, Stewart and Watson (2001, p.350) argue for the use of a hologram metaphor as a means reconciling the intrinsic confusions and contradictions of the conceptual, theoretical and empirical identities of HRD.

A hologram is a three dimensional image generated as the effect of the interplay of light beams coming from different sources (Oxford Living Dictionaries, n.d.). The key aspect of the hologram is that different facets of the representative image are revealed as the (human) viewer shifts their position. This interactive element involving interdependence between a person and the technology lead McGoldrick, Stewart and Wilson to define the hologram as a "techno-social artefact" (2001, p.351). The particular image generated from a particular viewpoint at a particular time suggests that there is not a single 'true' HRD whether knowable or unknowable, and that any singular view of HRD is unstable and temporary. The hologram metaphor allows the 'viewer' to see what he or she is looking for as HRD, while at the same time having the opportunity to view alternative facets and different views of that field of practice (McGoldrick, Stewart and Watson, 2001, p.351). The metaphor of the hologram of HRD captures the notion from assemblage theory of the fragility and inseparability of the entanglements of social and material components (Law, 2004; Johri, 2011) and how different potential capacities of different component of HRD may be mobilised (DeLanda, 2006).

The hologram metaphor indicates how HRD may be viewed as a coherent domain despite the tensions between, for example, an organizational

‘performance’ focus and a concern with individual learning valued for its ‘developmental’ or emancipatory outcomes (Garavan, Gunnigle, and Morley 2000; Trehan and Rigg, 2011). Others suggest that HRD can be understood as a bridging concept underpinning relations between the individual and the organization in a wider context of rapid organizational and societal change and so is concerned with the construction in language through storytelling of these relationships and bridges (Lee, 2010; Jorgensen and Henriksen, 2011). Hence, the scholarly analysis of HRD has been said to have taken ‘linguistic turn’ (Francis, 2007). Expanding on this ‘linguistic turn’ and drawing on Gergen (1995), Lawless, Sambrook, Garavan, and Valentin (2011) suggest that the practice of HRD is constituted by dialogue between actors who construct inter-subjective meanings from that practice. The discourses of HRD are not independent descriptions of what constitutes practice but rather compete with one another, so that the practices of HRD are unstable and highly contingent on the specific situation within which the practice is taking place.

Therefore, the professional knowledge of the HRD practitioner, as with most professional fields, should not be conceived in terms of a stable and external ‘body of knowledge’, a widely agreed set of resources and practices to be applied to a problem situation, but is, rather, inherently changeable, fluid, contested and contingent (Fenwick, Nerland and Jensen, 2012). What Keenoy (1999, p.3) found in respect of human resource management can be applied to HRD as a domain that “does not even encompass a set of coherent managerial practices; it is merely a map of what has turned out to be an ever-expanding territory”. Coinciding with this territorial expansion has been a growing trend towards occupational fragmentation with individual practitioners evolving towards increasingly specialised roles and undermining a broader occupational identity (Ruona, 2016, p.559).

But socio-material assemblage theory shows how the domain of HRD is not only talked in to being'. The discourses of HRD are materialised in, and emergent with HRD planning documents, learning management systems, performance management systems, learning materials, spaces of practice and workplace routines and common operating procedures. Hence HRD, as with other areas of management knowledge and practice, faces a tension between the expectation of generalizable and immutable practices and the realities of the contingent, fluid and flexible nature of actual practice (Gabriel, 2002).

Lawless *et al.* (2011) found that through discursive and interactional practices, HRD actors engage in establishing regulatory regimes of experts, practitioners and academics. Such regimes work towards the generation of meaning-making networks that enable the interpretation of professional activities through common discursive repertoires or ways of talking about professional practice. As Trehan and Rigg (2011, p.282) argue, as an organisation can be perceived as “networks of shared meaning” constituted through social interactions, so a profession can be understood as being constituted around a shared language.

So HRD, as with many domains of professional practice, is defined in terms of diverse and situated practices. Such practices are articulated through discourses that seek to both establish clearly bounded definitions of the HRD professional domain and others that permeate and break down boundaries and pull apart what is perceived as HRD. It is from the gatherings of discourses, language, material artefacts and configurations, technologies and entanglements with other assemblages that generate and stabilise the constitutive rules territorialising the professional domain of HRD. The Twitter chat events examined in this study are, I argue, one such assemblage where the practice-domain of HRD is co-constituted and territorialised.

## A co-constituted socio-material professional domain

The bounding of professional and occupational domains is enacted through the social and material construction of constitutive rules in some form of collective consensus. However, as discussed in Chapter 2 (see the section: 'Human capital, education and knowledge'), the context of many professional practices is changing in ways that increase the permeability and instability of the boundaries of those professional domains. Changes in workforce management practices and in the establishment of expectations of professional employment and career progression drive such transformations. In turn, these changes contribute to the instability of professional domains by undermining notions of professional knowledge, linking to particular discourses on the personalisation of professional development and the privileging of professional learning communities in assembling professional domains.

Professional work is increasingly taking place in networked contexts partly as a result of the spread of digital technologies generating new structures of distributed work (Castells, 2000b; Donnelly, 2011; Scholz, 2013). These place a premium on both labour flexibility and the capacity of the workforce to learn and change. Tams and Arthur, (2010) concluded that to maintain and enhance their position in this emerging and precarious labour market, individual workers: "need to engage in external networks and build personal connections that [make] knowledge transfer and new learning possible" (p. 631).

Within this context professional learning is seen as individualised and person-centred (Fenwick, 2013) with the aim to create the 'self-programmable' workers that Castells (2000a) characterises as having a



capacity for change through self-directed learning. An entrepreneurial knowledge worker responsible for her value in the labour market is presented as the ideal professional model. Such self-directed, continuous and informal learning is made more realisable and visible through the ubiquity of digital technologies (Wagner, Hassanein and Head, 2008; Gao, Luo and Zhang, 2012).

However, Castells presents a limited concept of the ‘capacity for action’ of the learner in a professional learning context (Ecclestone, 2009). Rather than “control of and power in the learning process” resting with the learner (Dirkx, 2008, p.130), this particular assembling of the notion of a professional promotes tends to generate a precarious workers constantly seeking to validate their potential employability through the development of skills, knowledge and capabilities.

In this increasingly atomised occupational context, there remains a wider public expectation that professional practices are predicated on some form of common or collective knowledge (Mäkitalo, 2012). The possession of specialised knowledge is seen as a key component of professional identity (Robinson, Anning and Frost, 2005) that is increasingly perceived as situated and contingent forms of professional knowing-in-practice rather than stable ‘bodies’ of knowledge (Sloep, 2014). Therefore, professional knowledge is generated through the sharing and refining of ideas in networks or communities with common domains of interest (Sloep, 2014) rather than ‘transmitted’ by institutions. Within these professional communities, digital technologies are not only means of discussing professional practices but also embody or enact that practice (McInerney, 2009).

Running alongside the discourses of individualisation, atomisation and personalisation are discourses of distributed, and social professional knowing and practice (Malcolm and Plowman, 2014). The use of digital technologies with these two trajectories of atomisation and distributed sociability is manifested in the emergence of online learning communities often transcending traditional organisational boundaries (McCulloch, McIntosh and Barrett, 2011; Sloep, 2014). Stoll, Bolam, McMahon, Wallace, and Thomas (2006) label these as Professional Learning Communities (PLC).

PLCs assemble together people with digital network technologies to engage in professional identity-making (Stoll *et al.*, 2006). Given the functionalities of the selected social technologies, these gatherings occur as textual interactions and collective meaning-making activities. The discourses generated seek to regulate what is counted as legitimate professional knowledge and knowing through the establishment of common discursive repertoires (Lawless *et al.*, 2011; Trehan and Rigg, 2011). So PLCs work to generate and maintain constitutive rules of professional practice.

Discursive interactions may perform different roles in the production of such constitutive rules. Heracleous (2006) identifies two overlapping levels of discourse: communicative actions based on interactions between individuals to, for example, share experiences or build relations; and deeper discursive structures that 'guide' and regulate those communicative actions. A PLC is formed through the common meanings developed in discursive structures (Bragd *et al.*, 2008; Dennen, 2008), generating a 'feeling' of community as individuals contribute to a particular discourse and drawing on particular discursive resources (Rigg, 2005), structures (Heracleous, 2006) or repertoires (Eriksson and Kovalainen, 2008). Such discursive structures decentre the individual person to focus on networks of activity and influence (Fenwick,

Nerland and Jensen, 2012) that work to generate a particular collective professional identity. Furthermore, discursive communities not only reinforce common repertoires among members but also identify discourses that differentiate members from 'others' outside the community (Bragd *et al.*, 2008). Hence discursive communities emerge through both collective meaning making and processes of marginalisation and exclusion that delegitimize 'other' discursive practices.

Discursive communities are central to processes of identifying what constitutes legitimate professional knowledge (Mäkitalo, 2012) through repertoires of specific vocabularies and dominant metaphors (Francis, 2007). These repertoires become institutionalised in collective discourses (Rigg, 2005; Fenwick and Nerland, 2014) and inscribed into professional profiles, occupational profiles, professional standards and qualification frameworks. The circulation of these discursive styles and inscribed materials permeate organisational boundaries (Jorgensen and Henriksen, 2011). Through such networks of interaction, a professional 'field', in Bourdieu's sense of the term, can be negotiated, refined and revised through on-going social interaction and made identifiable by common discursive repertoires (Czarniawska, 1997, p.180).

This research is concerned with how, in the context of an unstable and contested professional domain, gatherings of HRD practitioners engage in material-discursive practices and negotiate and renegotiate the discursive structures, repertoires or resources that constitute 'HRD practice' and HRD professional communities. But the constitution of the professional domain is not just a construct of discourse, but is, rather, assembled in the gatherings of texts, artefacts and material performances of professional practices.

## Twitter chat events

Professionally orientated chat events on Twitter have become increasingly common in recent years (Bingham and Conner, 2010; McCulloch, McIntosh and Barrett, 2011). These discussion events are organised through the Twitter convention of hashtags (#) in combination with a shortened name as an explicit ordering mechanism (Bruns and Stieglitz, 2014). There are over a hundred regular professional events hosted on Twitter including: #ARchat (business analysts); #brandchat (branding); #edchat (education); #imcchat (integrated marketing communication); #pr20chat (PR and social media); #smbiz (small business); and #talentnet (recruitment industry) (Gnosis Media Group, n.d.). The emergence of these discussion or chat events is predicated on both the popularity of Twitter as a platform as well as the adoption of the hashtag convention as a means of rapid and, at times, spontaneous network or community organisation (Ford, Veletsianos and Resta, 2014). As such, these events are largely defined by digital networking technologies (Jones, 2014).

Megele's (2014) conceptual paper positions these chat events as being concerned with the development of a collective position or ideational stance rather than as sites of dialogue or, in fact, 'chat'. Conversely, from their analysis of one Twitter chat event community, Ford, Veletsianos and Resta, (2014) found that these events are primarily concerned with the dissemination of information, the sharing of resources and the provision of emotional support. Similarly, Ferguson and Wheat (2015) discuss one particular Twitter discussion event in terms of reducing the sense of isolation among participants (in this case, Early Career Academic Researchers). Across five papers, Twitter chat events are portrayed as important sites of collective or 'conjoint' meaning-making either within a specific Community of Practice

(CoP) (McCulloch, McIntosh and Barrett, 2011; Wesely, 2013; Megele, 2014; Carpenter and Krutka, 2015), or among those entering a new profession (Ferguson and Wheat, 2015) or undertaking a common educational endeavour such as a PhD (Ford, Veletsianos and Resta, 2014) or teacher professional development (McCulloch, McIntosh and Barrett, 2011; Wesely, 2013; Carpenter and Krutka, 2015).

The framing of the Twitter Chat events as sites of professional community formation is frequently emphasised by participating practitioners as well as by the event organisers. Twitter chat events have been described by participants as “...wonderful communities of learning ... [providing] experiential learning opportunities ...” (Paul Signorelli & Associates, 2013). While #ukedchat (ukedchat.com/) self-identify as a community in the website navigation and in the description of the development of the event:



Figure 3: UKEdChat web page<sup>2</sup>

In the context of this study, these Twitter chat events provide access to practitioner reportage on their own practices, something that would be difficult to access in more controlled contexts or settings (Herdağdelen, 2013).

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<sup>2</sup> <http://ukedchat.com/about-2/>

Ritter, Clark, Mausam, and Etzioni (2011) point out that tweets mainly refer to events or activities in the immediate present or near future and so participants present themselves through anecdote or personal commentary, what Herdagelen (2013, p.1128) refers to as the “self at present”. Through such reportage, the Twitter chat events present potential opportunities to capture more natural presentations of HRD practice and the identification of discursive structures of a wide range of practitioner interactions in a manner that interviews, for example, may not be able to achieve (Warren Little, 2002). Jane Bozarth, a prominent participant in a number of Twitter chat events, describes such events as involving communities of learners and practitioners where:

*Most are open to offering up their own work and saying, "How could this be better?" -- if the feedback is given in a spirit of camaraderie from peers or other credible sources. Most people are willing to share what they know. Most people want to help each other (Bozarth, 2011, no pagination)*

I have viewed these Twitter chat events as potential ‘spaces’ to study how HRD practitioners report on and discuss their own practices and so attempt to form and maintain collective discursive repertoires and informal regulatory regimes as a “network of shared meaning” (Trehan and Rigg, 2011, p.282). Gillen and Merchant (2013), following their auto ethnographic study of academic tweeting, refer to Twitter use as an “instantiation of practices in which they are embedded” (p.49). The notion of instantiation asserts that a principle cannot be independent of an object and so knowledge and knowing are necessarily contingent and situated. The Twitter chat events are an instantiation of the professional area of HRD practice as made sense of by a self-selecting and partial group of practitioners. I argue in this thesis that assemblage theory is a useful perspective in generating insights in how

particular stances on the professional domain temporarily come to the fore; how possible alternative practices are drawn in to the scope of that professional domain and how other activities and practices are rejected or dismissed. So assemblage theory surfaces the processes and dynamics that produce particular definitions of a professional domain and how other definitions and, therefore, potential directions of development of the profession are closed down. In the case of these Twitter chat events, stances that do not align with a individualistic and neoliberal order are suppressed.

Assemblage theory also generates further insights in to how the dynamics of defining the professional domain are entangled in the practices and constraints and possibilities of the Twitter platform with text, images, and other material gathered together in the chat events.

## Twitter and community

### Virtual community

I have argued that HRD is an undefinable professional domain that is stabilised in material-discursive practices of inter-subjective meaning-making. These discursive practices take place in and between networks of practitioners including in online environments such as Twitter and the Twitter chat events. Therefore, the Twitter chat events provide a useful research site of practitioner reportage of the professional 'self at present'. However, Twitter chat events are presented and discussed by the events, by practitioners and by scholars as examples of communities and so the notion of community, in particular of community as manifested on Twitter, is examined in the following section of this chapter.

The notion of 'community' is commonly used in relation to the study of online interactions and activities (Yuan, 2012) and has been a topic of concern from the earliest research on the internet (Rheingold, 1993; Turkle, 2011). Throughout such research, the conceptualisation of 'community' as an idealised social structure tends to dominate.

Barry Wellman has, over a long period, analysed the breakdown of traditional notions of community. He identifies this breakdown as a long-term trend largely driven by social change including greater labour mobility, mass transportation, technological shifts, especially in telecommunications, and changes in residential and commercial land use. One outcome of these trends has been that co-workers no longer necessarily live in close proximity and that people with similar life experiences and interests are increasingly geographically dispersed yet able to communicate easily through a variety of means including social media. Wellman *et al.*, (2003) find that these trends have re-orientated the concept of community from co-location to dispersed networks based on common interests, experiences and subcultures. Hence the discourses of the knowledge economy discussed in Chapter 2 and dependence on digital technologies also permeate current notions of community.

Castell's network society co-emerges with the knowledge economy and a shift in economic focus from manufacturing to knowledge-intensive firms that are dependent on expertise (Tams and Arthur, 2010) accessed through network relations (Ribiere and Tuggle, 2010; Swart and Kinnie, 2014). Therefore, professional knowledge work is increasingly taking place in networked contexts via the spread of digital technologies that enable new structures of distributed work (Castells, 2000b; Donnelly, 2011; Scholz, 2013). This shift towards networked and distributed work reinforces the trends



identified by Wellman and colleagues that erodes notions of community based on physical proximity.

However, the importance of access to expertise for firms also generates countervailing effects that favour physical proximity. This trajectory is often associated with local economic development policies based on sub-sectoral specialisation (Kemeny and Storper, 2015) but may be formed around particular fields of expertise: for example, the so-called 'creative class' (Florida, 2002). However, many professional occupations, including HRD, work across all sectors and so may look to occupational affinities for their professional networks and communities rather than particular industrial clusters.

Wellman *et al.*, (1996) discuss the formation of online communities through individuals engaging in information exchange while also seeking affective and social support. They frame online communities in terms of information seeking and matching processes that they term as a 'market approach' while retaining a commitment to the affective aspects of 'community'. Boyd and Nowell (2013) refer to a Psychological Sense of Community (PSOC) involving a sense of personal affective connection that meets a particular individual need but also that the participant has a sense of impact on the community, that their contributions are valued and have an effect. It is this affective component that distinguishes online community from boyd and Ellison's (2007) social networks and social networking that are more concerned with network ties, often in the form of log data, rather than the nature of any interactions taking place .

As Yuan (2012) argues, online communities are framed in terms of the formation of networks to meet particular individual participant needs and

this is distinct from geographical notions of communities where people formed communities through living or working in close proximity to one another. This focus on the individual has been termed 'network individualism' (Wellman *et al.*, 2003) and has generated increased demand for digital collaborative communication and information sharing services that in turn have consolidated network individualism as a social norm (Wellman *et al.*, 2003). As suggested above in the case of Twitter, networked individualism is inscribed in the 'private' and personalised networked technologies used daily to enhance the sociability of dispersed, mobile and atomised communities of interest.

From a more practice-orientated perspective, Preece, Maloney-Krichmar, and Abras (2003) emphasise common norms of behaviours that underpin group sociability that lead to the formation of online communities. This notion of sociability suggests an alignment between the expectations of the individual participant with group behavioural norms (Boyd and Nowell, 2013). Building on these two positions, Glezakos and Lazakidou (2012) define online community as 'an organization' of people interacting using digital networked technologies that involves both expected norms of behaviour but also some form of affinity or sense of belonging based on a common domain of interest, practice or location that is sustained over time bounded within a 'specialised domain' (Wellman *et al.*, 1996). The notion of being sustained over time is an important distinction between a community and an online 'space' to chat without any expectations of commitment to return (Ridings and Gefen, 2004). Yet, as Pratt and Back (2012) argue, the notion of community in an online context is problematised by asking what generates a sense of community: what practices and what meanings define a community and, perhaps as importantly, what practices and what meanings exclude someone from membership of that community.

Given the focus of this study on interrogating the extent to which particular Twitter chat events of HRD professionals constitute a 'community', the following sections explore the conceptualisation and application of notions of online communities through research and practices associated with microblogging in general and Twitter in particular.

## Communities on Twitter

Twitter was initially designed as an information dissemination or 'updating' tool rather than as a platform for developing or maintaining communities (Gillen and Merchant, 2013; Stephansen and Couldry, 2014). The term 'community' is frequently used in academic discussions of Twitter and, as would be expected, is used in a wide variety of ways. For example, Rui and Whinston (2012) refer to all users of Twitter as 'the Twitter community' but this notion of defining a community by the use of a particular software service ignores any of the affective and supportive aspects of 'community'. Furthermore, to describe the heterogeneity of Twitter users - from heavy users to occasional users, those posting in different languages and about different topics, corporate users marketing their products and brands through to users with private accounts posting to a tightly bounded groups of people - as a 'community' appears to make that term meaningless. Similarly, Wilkie, Michael and Plummer-Fernandez (2015) study of 'the energy community' on Twitter encompasses a wide range of fragmented groups with different interests and intentions concerning 'energy' and so lacks the personal affective connections highlighted by Boyd and Nowell (2014). These wide ranging and under theorised applications of the term 'community' on Twitter can be seen to underpin Loureiro-Koechlin and Butcher's (2013) findings that Twitter generated in effect 'weak communities' of new contacts and "potential friends" but the 'community' was

strengthened through other activities such as face-to-face meet-ups. However, such 'weak communities' appear to be social networks (boyd and Ellison, 2007) rather than as 'communities' that involve sustained commitment and affinity.

Other studies have tended to focus on more tightly bound groups, often as existing associations or 'communities'. Often, these studies looked at Twitter as a mechanism to enhance or support existing non-digital community interactions in relation to community policing (Omanga, 2015) or formal education provision (Mills and Chandra, 2011; Domizi, 2013; Munoz, Pellegrini-Lafont and Cramer, 2014) rather than investigating communities formed and maintained on Twitter.

In the context of explicitly online communities, a number of studies have investigated the use of Twitter to enhance interaction and engagement between participants on Massive Open Online Courses (MOOCs) (Koutropoulos *et al.*, 2014; Treeck and Ebner, 2014; Shen and Kuo, 2015) or provide a conference backchannel (Ross, Terras, Warwick, *et al.*, 2011; Li and Greenhow, 2015). Again, such 'communities' tend to be temporally bound by a unifying event, the conference or MOOC, with little evidence of sustained engagement and commitment beyond that very specific experience. So such communities on Twitter align with notions of SNS as spaces of social networking, which is where users mobilise social media tools to augment pre-existing relationships that may be temporally and spatially dispersed (boyd and Ellison, 2007; Ellison and boyd, 2013).

Other studies that have investigated 'communities' on Twitter tend to be interest-based such as natural disaster emergency relief (Purohit *et al.*, 2013); US college baseball (Reichart-Smith and Smith, 2012) or political affiliations

(Conover, Ratkiewicz, and Francisco, 2011). These studies tend to define community in terms of the particular functional features of Twitter, often the hashtag, and reflect key aspects of the design intention and paradigm assumptions underpinning many of the protocols of Twitter. Community is often defined in terms of the mobilisation of a specific hashtag with no regard for the affective and emotional aspects of 'community' (Boyd and Nowell, 2013). So, in these instances, the term 'community' appears under-conceptualised and somewhat impoverished.

I argue that there appear to be three broad and inter-related themes in bounding 'community' on Twitter: an ego-centric focus on network ties; a structural focus on the density of network ties; and the identification of community through specific behaviours.

### Ego-centricity

Reflecting the individualistic perspective on the 'Twitter experience', a number of studies take a distinctly individual focus to the identification of networks and in describing such networks as communities. For example, Loureiro-Koechlin and Butcher (2013) analyse the networks of individual users (what they identify as 'The Crowd' for each user) which they describe as a personal community of users linked by existing friendships but which often lack shared interests or goals. Penney (2014), in a study of the diffusion of political messages on Twitter, uses the term 'community' as being synonymous with a user's personal Twitter follower and following networks. Other studies have used a personal network of Twitter followers as the starting point for their analysis (Gruzd, Wellman and Takhteyev, 2011; Marwick and boyd, 2011; Gillen and Merchant, 2013).

Furthermore, not only is the individualistic and ego-centric view of networks and online communities embedded in Twitter as an SNS (Yuan, 2012), it is also embedded in prominent research methods associated with social media, in particular in Social Network Analysis (SNA). SNA tends to provide an individualistic and instrumental view of community, similar to that of 'networked individualism'. So both the Twitter platform and common research methods align in framing community on Twitter in terms of being an extension of the presentation of the self online.

### Structural perspective on community

Coinciding with the computational and big data turns in the social sciences, and following the existing research biases discussed above, much of the existing research on communities on Twitter reflects a structural perspective in identifying communities within networks of Twitter users. For example, Borondo, Morales, Benito, and Losada (2014) and Rieder (2012) defined community in terms of algorithmic measures of the densities of network ties using SNA and based on network ties produced by use of the specific hashtags of interest.

From this structural perspective, community is a product of measure of the density of network ties between Twitter accounts that are analysed as indicators of community (Panagiotopoulos and Sams, 2012). So community is at least partially generated through the particular functions of Twitter associated with addressivity (Honeycutt and Herring, 2009) and retweeting (boyd, Golder and Lotan, 2010). Hence, from this structural perspective, community is technologically determined as it is defined by the trace data of network ties generated by the particular social media platform used. But these structural approaches do not address the affective dimensions of

community such as the provision of emotional support or the psychological sense of belonging.

### Framing community through behaviours

I now turn to behavioural norms as a focus of concern in the identification and analysis of community on Twitter. Rui and Whinston (2012, p.310) refer to “the Twitter Community” based on behavioural norms of information sharing and on their framing of Twitter as a social broadcast tool. For them, community is not identified through interaction and dialogue but through mobilising particular functions of the technology or technologies in-use. Tufekci (2014) refers to Twitter communities as sub-groups of general Twitter users defined by particular behaviours on Twitter such as “hate-linkers” or users of screen grabs rather than retweets in disseminating the tweets of others. It is interesting to note that the focus here is on subversive behaviours, either attacking the norms of sociability or undermining the inscribed behaviours of the technology, in this case, the “RT” button. This latter behaviour subverts both the design intent of the software and the business model of Twitter as screen grabbing does not provide the meta-data that can be mined for ‘business’ purposes. However, Tufekci seems to be engaged in a circular argument that the two behaviours of hate-linking and screen grabbing are both the effects of being a member of a particular community yet are also the mechanisms whereby the community is generated or achieved. So this behavioural perspective does not appear to provide an adequate explanation of community on Twitter.

As has been previously noted, a key feature of Twitter mobilised in the identification and the generation of communities is the hashtag.

### Hashtag communities

The emergence of the use of the hashtag on Twitter generates forms of networks and communities that can be contrasted to an egocentric framing of networks (Jones, 2014). The hashtag performs the role of a signifier that the tweet content is relevant to the topic of interest (Reichert-Smith and Smith, 2012) and signalling an intention to generate some form of topic coherence (Brock, 2012). The use of the hashtag may generate networks based on interests or concerns with limited or no aspect of social relationship: users may participate in the community without the social network ties of a 'follower' or 'following relationship'. For example, Purohit *et al*'s (2013) study of the "disaster-relief community" involved the analysis of a large volume of tweets to identify social network ties between those tweets and captured in the Twitter API. The relationship between the tweets is framed entirely by the interest indicated through the hashtag without seeking or projecting any interest in other social ties. Ties generated within a hashtag community are predominately ideational so producing different social outcomes from egocentric networks while generating similar trace data and similar outputs using quantitative social network analysis.

The use of Twitter hashtags to generate a conference backchannel (Ross, Terras, Warwick, *et al.*, 2011; Li and Greenhow, 2015) is another example of an event based and, therefore, transient online community. A conference back channel is based on a common interest in the conference event itself as well as the broader topic of interest so by enabling greater and deeper reflections and content knowledge based on a pre-existing expertise (Ross, Terras, Warwick, *et al.*, 2011). Again, this illustrates the heterogeneity of the effects of specific Twitter functions where the same function may enable a reflective dialogue in, for example, the digital humanities, while that same function can be used to discuss direct and indirect experience of immediate events such as the



#londonriots (Procter, Vis and Voss, 2013); or the plethora of interests arising from the Japanese Tsunami (Markham and Lindgren, 2012).

The use of the hashtag feature enables the rapid formulation of ad hoc thematic communities around specific topics or events (Small, 2011; Sloep, 2014). The Twitter chat events themselves are a specific form of hashtag network or community but differ from other hashtag communities by tending to be sustained over time, having some component of regular membership as well as being organised to be focused on specific topics to be discussed at an agreed day and time and on a regular schedule.

Twitter chat events have a number of features in common with hashtag communities in general. As Reichart-Smith and Smith (2012) suggest, hashtag communities generate specific, recognised spaces of sociability around a common interest. So they go on to describe hashtag communities as a new type of 'water cooler' (2012, p.540). The metaphor of the water cooler chat implies a pace for informal chats about aspects of joint interest outside the workplace, such as television programmes, political or sporting events or exchanging rumours and gossip at work producing a sense of sociability and belonging. Twitter chat events can perform a similar function in professional networks and this is reflected in many of the descriptions of the events: Ford, Veletsianos and Resta (2014, p.4) describe Twitter chat events as "places of gathering" of disparate users that, over-time, generate a sense of belonging through sociability. But unlike the informal and purposeless dialogues implied in the notion of 'cyber-loafing' (Lim and Chen, 2009), Twitter chat events intend to involve the exchanges of information and experience concerned with professional practice. For example, McCulloch, McIntosh and Barrett (2011) note the description of #ukedchat as the participants' only regular access to professional development.

The function of the hashtag is not only to signify relevance and coherence to a series of tweets. Marwick and boyd (2011) discuss the use of the hashtag on Twitter as a function for segmenting different (imagined) audiences. From this perspective, the hashtag is a response to the fluid and unbounded networking on Twitter (Marwick, 2014) by signifying an intended and specific network audience and so contextualising or territorialising the tweet and its effects to a particular network assemblage. Marwick and boyd go on to present hash-tagging in terms of Goffman's self-presentation and that different hashtags signal the presentation of different aspects of the Twitter user to different communities. Hence the same hashtag function can transfer across different assemblages of Twitter communities.

In the case of the Twitter chat events, the event hashtag is used as a signal of the intended participants and audiences for the tweet in terms of common experiences and information on common interests (Ford, Veletsianos and Resta, 2014) and emotional support (Ferguson and Wheat, 2015). In turn the hashtag may also signify to other communities to which the Twitter user interacts with a particular (professional) identity. Hence the hashtag acts to identify the user with a particular professional domain and as contributing information, experiences and expertise relevant to that domain.

Megele (2014) discusses the chat events as being concerned with the development of a collective position or stance rather than as sites of exchanges of information, experience, expertise and emotional support. While Ford, Veletsianos and Resta (2014) cite Doll (2009, p.164) in finding the Twitter chat event communities as "complex, fractal and turbulent" suggesting that the hashtag function is a weak signifier of community coherence. The Twitter chat event community of #PhDChat is contrasted with

other hashtags such as #OlympicsOpeningCeremonies or #prayforjapan where the hashtag acts to aggregate content rather than generate communities. Yet the participants in the Twitter chat events change frequently so the hashtag communities are in a state of continual emergence as new participants engage through the hashtag while other participants cease that engagement. So the chat event communities are simultaneously unstable and ephemeral in terms of membership, yet also present a sustained presence in terms of the continued use and intent of the hashtag itself. As Megele suggests, the chat events may generate particular positional stances that are sustained through engagement by different participants through the hashtag. Communities may be formed, maintained and sustained through the mobilisation of particular discursive and material resources to generate specific positional stances or what Deleuze and Guattari (2008, p.321) refer to as territorialising professional refrains.

### Imagined Communities

The professional refrains of the Twitter chat events also assemble the notion of the 'audience' for the discussions. Yet the notion of an 'audience' on Twitter is not straightforward. Twitter is an asymmetrical network whereby a user can follow another without the need for that relationship to be approved or reciprocated (Gruzd *et al.*, 2011). Furthermore, mobilising the retweet function of Twitter can traverse a tweet across many different assemblages of Twitter relations and communities. Therefore, the creator of a tweet cannot know what the audience of that tweet actually is and so a perceived audience may be very different from the 'actual' audience as revealed through use-logs (Marwick and boyd, 2011). In response to this fluid, unbounded and unknown nature of relations on Twitter there is a recurrent interest in the importance of the imagined audience or community in interpretive and

qualitative based research on Twitter (Marwick and boyd, 2011; Erol, 2013; Marwick, 2014; Stephansen and Couldry, 2014).

Many of these studies draw on Anderson's notion of the 'imagined community' (Anderson, 2006) with its emphasis on the entanglement of language and technology in generating a sense of belonging and sociability (Fox, 2005). Gruzdt, Wellman and Takhteyev (2011) make use of the concept of the imagined community in analysing Wellman's personal Twitter network as a 'community'. Rather than having direct knowledge of one another, the members of Wellman's Twitter network draw on a greater or lesser awareness of each other's presence without necessarily interacting (Tufekci, 2014). Thus actors within a network may have some sense of social presence (Lee, 2004) that may not be reciprocated.

Fox's (2005) analysis of the role of newspapers illustrates the way in which technology and visual design may generate and maintain the notion of imagined community. Discussing the layout of newspaper front pages as consisting of a number of unrelated news stories, Fox asserts that (2005, p.103):

*The regular reader thus keeps abreast of multiple narrative threads that weave the fabric of his or her imagined world. But this is not experienced as a simulated world but as the real world ... By following the threads of news over time, the reader maintains a sense of a world known in common with distant, imagined others...*

Fox concludes:

*In terms of 'symmetrical analysis', the non-human elements in the networks of 'print capitalism' made the 'imagined community' of the*

*nation ... a social and cultural reality.*

Similarly, the visibility of streams of tweets through follower networks, trending terms and hashtagged content may generate what Bakardieva (2003) refers to as a 'virtual togetherness'. As Marwick and boyd (2011) argue, that sense of togetherness is manifested and inscribed in the content of the tweets. Similarly, content consumers may imagine themselves as being part of a wider imagined community through their consumption of conversational streams through their individual timeline as well as through the trending topics.

For example, Erol's (2013) analysis of Turkish nationalist discourse on Twitter found a virtualised imagined community where particular discursive structures "conjures the sense of national solidarity" (Erol, 2013, p.748). This sense of solidarity or belonging is achieved through the use of deictic markers which are terms that are used to mobilise a metaphorical sense of an immediate shared proximal space such as 'here', 'now' or 'this' (Goodings, Locke, and Brown, 2007, p.466). Deixis surfaces how text and context are presented through special metaphors utilised in engaging with virtual environments (Erol, 2013).

In conceptualising the Twitter chat events, Megele (2014, p.48) states, "understanding how audiences are framed is key to any understanding of discourse". Yet, in online communities in general, and Twitter in particular, the concept of the audience and community is problematic. In the context of hashtag communities, unaddressed tweets are sent to ambiguous, heterogeneous and imagined audiences and communities. I am arguing, however, that discursive resources are mobilised to scope and territorialise such communities.

### Discourse community

While Twitter was not initially designed as a conversational medium, user behaviours have demonstrated its affordances for doing so (Honeycutt and Herring, 2009; boyd, Golder and Lotan, 2010; Zappavigna, 2011; Bruns, 2012; Gillen and Merchant, 2013) which have then been inscribed in to the platform features.

As discussed earlier, engaging in the generation of a sense of addressivity and conversation is an important building block to creating a sense of community. This may be achieved through the use of the reply function or the use of a hashtag as a potential signifier of direct relevance or through the use of the retweet as a mechanism for marking presence in a conversation (boyd, Golder and Lotan, 2010; Reichart-Smith and Smith, 2012) as well as supporting a sense of conversational coherence between tweets (boyd, Golder and Lotan, 2010). Dann (2010) and Koutropoulos *et al.*, (2014) found that a sense of belonging associated with community and social presence was enhanced through discursive strategies that promote phatic discourses.

Yet the sense of community is not simply generated through the presence of conversational structures mediated through the functional platforms of Twitter. A sense of community on a text-based media such as Twitter is generated through the creation and maintenance of a shared repertoire of language that engages in community-building and identity work (Stephansen and Couldry, 2014) including particular positional stances or refrains.

Discursive repertoires may encompass genres as purposive activities linked to emergent structures of discourse events (Fairclough, 2003). Such structures and genres assist in establishing the norms of participation in a Twitter interaction. Genres interact with discursive style to establish and maintain

how, for example, a particular profession may use particular terms (Bax, 2011).

Zappavigna (2014) theorised parenting groupings on Twitter as discourse communities with shared repertoires and genres that are part of social bonding: generating a sense of community through the general language of the community. She acknowledges the lack of direct interaction in such Twitter communities by referring to a notion of 'ambience' whereby participants are talking about the same topic at the same time and drawing on the same communicative actions and resources (Heracleous, 2006). Such ambience acts as a territorialising refrain whereby community is generated as an effect of cumulative discursive stances.

Repertoires of language resources mobilise particular discursive actions, that can be described as genres or communicative structures that enable the public performance of identity through tweets (Brock, 2012). The emphasis on establishing structural coherence between tweets leads to a reframing of the analysis away from the individual tweet to aggregated tweets as a single, more or less, coherent text (Ross, Terras, Warwick, *et al.*, 2011). Mills and Chandra (2011) frame this as a form of distributed conversation as contributors build on one another's tweets. It is these accumulations of tweets that generate a sense of order at the large-scale and disorder at the granular scale (Wilkie, Michael and Plummer-Fernandez, 2015).

The identification and analysis of community on Twitter can be seen as a complex gathering of components of structural ties, user behaviours, ideational content and relational signifiers. These components interact with one another to territorialise and stabilise particular relations as 'communities'.

## Being a professional and professional learning

Learning, including professional learning, and educational research are dominated by assumptions of the centrality of the human subject (Nespor, 1994; Sørensen, 2009). This dominant perspective divides knowledge from the knower (Haxell, 2016) but also ignores the materialities of learning. Drawing on the ontological and epistemological stance discussed in Chapter 2, I position knowledge as an effect or outcome that is co-constituted in intra-actions between people and their environments. Knowledge is not an object or ‘thing’ to be acquired or transferred with an implied immutability (Allen, 2012). As Harman (2014) argues, drawing on Foucault, if knowledge is co-constituted then it too has agency: knowledge is both an effect and also has effects, for example, on work and on workers. Learning is not about reproducing knowledge and existing reality but is about producing particular realities through the intra-actions and interactions of components in assemblages (Johri, 2011). Learning, therefore, occurs in Pickering’s (1993) ‘mangle of practice’ as both an effect of a network-assemblage as well as through the processes of assembling (Mulcahy, 2012).

As I discussed in Chapter 2 (see the section: ‘A socio-materiality of practice’), learning, like all practices, involves “participants enact[ing] activities in relation to one another” (Johri, 2011, p.210). Practices are inherently social and material overcoming the dualisms of treating the social and the material/technological as separate. Despite the dominance of humanist discourses and epistemologies in the understanding and analysis of learning practices there is a growing body of literature addressing how the material matters in



learning practices (Engestrom, 2001; Hakkarainen, Engeström and Paavola, 2009; Fenwick and Edwards, 2010; Fenwick, Edwards and Sawchuk, 2011; Johri, 2011; Thompson, 2012a, 2012b; Fenwick and Landri, 2012; Mulcahy, 2012; Wesely, 2013; Fenwick, 2014; Knox, 2014; Bayne, 2016).

From this socio-material perspective, skills, knowledge and knowing are performative enactments of dynamic and unstable multiple realities (Simons and Masschelein, 2008; Allen, 2012; Fenwick and Edwards, 2014). Hence, learning is generated in and through networks of relations between elements gathering in assemblages (Thompson, 2012a; Fenwick and Edwards, 2014). For example, Fox (2005) argues competence, the skills, knowledge and knowing necessary to perform an activity (Rankin, 2002), is not an inherent attribute of an individual but is, rather, an expression conferred to particular actions that are assembled together. So competence is performed in to existence in particular social and material situations rather than being a mutable property of specific actants.

In seeking to disrupt individualistic and human-centre assumptions of learning, Nespor (1994) analyses learning in spatial terms whereby learning involves being able to reconfigure competences in different assemblages or situations. This contingent and contested nature of professional practice and competence, along with the rise of the networked society and the precariousness of the knowledge economy, has amplified the role of communities or networks for professional learning and identity (Bingham and Conner, 2010; McCulloch, McIntosh and Barrett, 2011; Thompson, 2012a; Malcolm and Plowman, 2014; Sloep, 2014). Such communities enact structures of accountability (Evetts, 2011) and validation of competence as well as providing emotional and other support (Thompson, 2010; Tynjälä and Newton, 2014). Participation in such professional communities can also be

understood as necessary components of professional identity-making and enhancing opportunities for continued employment (Tams and Arthur, 2010; Buscher, 2014). Twitter has been a prominent technology in the formation of such learning communities (Bingham and Conner, 2010; McCulloch, McIntosh and Barrett, 2011; Megele, 2014; Carpenter and Krutka, 2015).

Furthermore, the assemblages of professional learning have become more fluid as the assemblages of professional occupations and professionalism have been increasingly destabilised and deterritorialised (Nerland and Karseth, 2015). Particularly in the less regulated professions, there has been an erosion of the notion of professional practice as being bounded to the reproduction of a common body of knowledge (Mäkitalo, 2012). Extending Schon's (1984) reflective practitioner, professional practice and professionalism is increasingly recognised as situated and contingent, and therefore fluid and contested (Fenwick, Nerland and Jensen, 2012). It is this fluidity, along with experiences of the accelerated pace of change that generates key challenges for professional learning including the pressures reducing the time available for the sort of deep reflection envisaged by Schon (Webster-Wright, 2009).

In this section I examine professional learning and social media from two key perspectives. Firstly, I examine learning as an act of assembling involving the interactions of text, multi-modal artefacts, discursive actions and structures, genres and styles, technologies and data traces as they are entangled in enactments of online professional learning. Secondly, I argue that professional learning involves performances of the normative expectations of the knowledge economy in terms of individual capacities for change and network expertise. Such performances emphasise expertise in terms of

knowing how to know (Spender, 2005; Edwards, 2010) necessary for the self-programmable professional of Castells' network society.

## Learning as assembling

If learning is enacted in the processes of generating assemblages, then learning is itself a relational accomplishment. Learning is assembled in the interactions of eyes, text, hands, keyboards, software functions, networks, discursive styles and genres gather in assemblages (Allen, 2012). Professional learning and professional practice are co-constituted in contingent situated assemblages (Orlikowski, 2002; Harman, 2014) and knowledge is inseparable from its enacted performance. Hence knowledge, skills and competence are better understood as 'knowing-in-practice' (Thompson, 2010, p. 362).

Knowledge sharing is a form of learning that then requires "participating in a dialogue with trusted colleagues, then integrating, revisiting and even returning to share results about those practices" (Wesely, 2013, p.313). Yet as noted above, learning is more than dialogue between human actors but is, rather, a socio-material enactment (Fenwick and Edwards, 2014). The enactment of learning in practice is accomplished "[as] new portions and fragments are drawn into and expanded in the course of learning, so the knowledge forms themselves are altered and transmogrified" (Allen, 2012, pp.44-45). So researching processes of learning should be concerned with "making visible the everyday, particular micro-dynamics of education and learning" (Fenwick and Landri, 2012, pp.3-4) that are enacted as a form of 'gathering' (Edwards, 2010). As with any socio-material assemblages of practice, knowledge and learning is messy involving ongoing process of the development and transformation of mutable knowledge. So knowledge and skills cannot be 'shared' from one assemblage to another (Simons and Masschelein, 2008) but must be reconfigured and reassembled in their

performances in assemblages. In this way, learning and knowledge are complex assemblages where the same components may generate very different outcomes.

The processes of assembling workplace and professional learning place a high degree of importance on boundary-making of assemblages of knowing and learning. Such boundaries become more important in assemblages of learning and knowledge-making occurring outside traditional institution-assemblages of education (Billett, 2004; Harman, 2014). Boundary-making can be located in the territorialising of specific occupations (DeLanda, 2006) or of communities of practice that span organisational boundaries (Harman, 2014) or of particular practice domains (Fenwick, 2014) or of networks of work and learning (Thompson, 2012b). In these cases, boundary-making involves continued inclusion and engagement of those 'inside' the boundary (Reichert-Smith and Smith, 2012) while also working to identify and exclude perceived 'outsiders' from the territories of knowing-in-practice that are being assembled (Dayter, 2014). Professional learning involves access to forms of learning 'communities' (Thompson, 2012a) that are concerned with the application of knowledge in practice (Johri, 2011). Yet within such relational configurations of learning practices, professional learning is also assembled as both self-directed and self-regulated.

Rather than being located within singular practice, situated or occupational network-assemblages, professional learning is increasingly taking place in the gaps between work and non-work time (Nespor, 1994; Gregg, 2011) and between and across different network communities. So professional learning is being constantly assembled and re-assembled in the 'spaces between' more stable institutional and practice assemblages of, for example, work and non-work. It is this instability that opens up the processes of learning to scrutiny

as learning can no longer be treated in singular and consensual terms (Fenwick, 2010). Slade's (2013) analysis of learning among community police officers found the boundaries of the social and material opportunities for their learning to be unclear and unstable. Allen (2012), meanwhile, takes an 'after-ANT' perspective in emphasising instability and fluidity in knowledge production. Allen shifts the focus of interest away from actor-networks and towards "a bricolage like performance of fluid knowledge-making" (p.31). Bricolage is used here, not in reference to the instrumentalism of the dominant human actor using materials and tools that come to hand (Levi-Strauss, 1967) but rather as an effect of socio-material components in an assemblage. Hence there is a shift in the focus of the analysis of learning away from educational or professional institutions or communities towards how learning is being accomplished as an effect of assemblage (Nespor, 1994, p.136).

As MacLeod *et al.*, (2015, p.1455) argue, a socio-material assemblage-based perspective "has profound implications for our understanding of learning". These profound implications include how such complex entanglements can be effectively analysed and how the learning effects of assemblages can be coaxed in to being, facilitated or managed as intentional activity. Yet, as I've previously discussed, assemblages have the capacities to generate regulatory regimes or normative expectations that shape and amplify particular subjectivities (Edwards and Nicoll, 2004; Gale, Turner, and McKenzie, 2013). Gale, Turner and McKenzie (2013, p.560) go on to describe the complexities and dynamic fluidities of "intersecting forces and lines of flight" that rendered the constructs of social and situated learning, including communities of practice, as "anodyne and flat".

In the following section, I return to the notion of the enterprising-self (du Gay, 1996) discussed in Chapter 2 (see the section: 'Networked and individual'), and how this particular subjective position may be mobilised in assemblages of learning.

### Assembling performances of the enterprising self

As I argued in Chapter 2, the socio-economic 'problem' of the shift to the knowledge, or 'weightless' economy and been translated into a 'societal problem' to be solved through education and lifelong learning. This translation mobilises lifelong learning and the development of 'domains of expertise' (Simons and Masschelein, 2008) as the 'solution' to the precariousness of employment and increasingly competitive labour markets. This then problematizes the negative connotations of being a learner, and thus not a full-fledged professional (Thompson, 2010). Furthermore, Wesely (2013) claims that participants self-identifying themselves as learners is an indicator that learning is taking place. But the positioning of professional learning as a performance of an assemblage of professionalism and employability in the knowledge economy problematizes this argument. Rather, to self-identify as a learner is to enact an assemblage of professionalism and employability in the knowledge economy.

The subjectivities mobilised and amplified in the assemblages of professional learning are concerned with the development of capacities for learning and adaptation. In particular, the development of such adaptive capacities are often framed in terms reminiscent of heutagogy as a theory of learning that Anderson (2016, p.42) describes as a self-directed journey to "capacity rather than competency". Heutagogy is clearly framed in terms of the knowledge economy and Castell's self-programmable worker: "The self-determinism that defines heutagogical approaches to teaching and learning is seen as

critical to life in the rapidly changing economy and cultures that characterize postmodern times” (Anderson, 2016, p.42).

Yet the discourses of the knowledge economy and the construct of the enterprising and self-programmable knowledge worker is predicated on the immutability of capabilities and knowledge that can be transferred from assemblage to assemblage. Simons and Masschelein (2008) describe learning as a form of capital enabling the knowledge worker to mobilise and renew their knowledge resources. They go on to argue for the importance of governmental, institutional and organisational roles in developing effective environments for learning where the knowledge worker can continue to develop their knowledge capital. Such a conceptualisation of the knowledge worker positions her as possessing the agency to regulate her own learning: to set the ‘correct’ goals, take action and to monitor the results (Billett, 2004; Simons and Masschelein, 2008). Furthermore, knowledge is again positioned as an asset or resource to be acted upon by the learner or knowledge worker and that may be transported unproblematically from situation to situation. But as I have argued above, knowledge is not an immutable object but is, rather, entangled in the mangles of the specific practices in which it emerges.

However, if this argument holds, then why do professionals engage in informal learning networks and communities such as the Twitter chat events? Thompson (2011, p.192) identified learning communities as performing more functions than ‘only’ learning and points especially to affective elements such as professional affiliation and relational support in the experiences of ‘becoming’ a professional. So assemblages of professional learning span networks of shared occupational meaning-making (Thompson, 2010; Malcolm and Plowman, 2014) alongside emphasising personalisation, competition and self-reliance (Fenwick, 2013; Wesely, 2013). These

multiplicities of professionalism and professional learning are increasingly fluid, complex and emergent in their messy entanglements with the wider assemblages of the knowledge economy, speed or expectations of time compression and technological determinism. The notion of work intensification becomes entangled with practices of learning and expectations with the assumptions that any “learning goal is framed [as] changes at a quicker pace” (Peña-López, 2013, p.132).

The final part of this section of the literature review investigates the literature related to professional learning on Twitter specifically.

## Twitter and professional learning

Professional learning is increasingly seen to occur in the context of networks, sociability and communities of which social network sites such as Twitter may be drawn in to. As noted in Chapter 1, Twitter mobilises expressions of the ‘self as present’ whereby participants in the chat events report on and enact their professional practices. Hence the chat events provide opportunities for both enabling and studying professional learning “from the ground up” (Wesely, 2013, p.305).

Yet it should be emphasised that any account of professional learning focused on Twitter will amplify smaller assemblages of practices compared to the wider field of professional learning. Many professionals do not use any form of social media for their professional practices including learning. Even in the case of those engaged in online learning opportunities such as a MOOC (Massive Open Online Course) tend not to use social media for their professional learning (Milligan and Littlejohn, 2014). Where professionals do use social media in their daily practices, this is more commonly associated



with external facing social media marketing communications targeting customer, partners and vendors (Leonardi, Huysman and Steinfield, 2013; Page, 2014) . Yet there is a growing body of literature regarding personalised learning that is mediated via personal learning environments (PLEs) that often refer to Twitter as a key technology (Wilson *et al.*, 2009; Fournier and Kop, 2010; Kop, 2010; Milligan, Littlejohn and Margaryan, 2014). In professional learning contexts, the use of PLEs has been identified with knowledge intensive and distributed firms where extended professional networks are integrated in to individual working and learning practices often with an emphasis on instrumental information exchanges (Gibbs, Rozaidi and Eisenberg, 2013). This instrumentalist framing is often articulated in a discourse of technologically enabled efficiency – of ‘just-in-time’ learning and performance support (Gee, 2003; Bingham and Conner, 2010) – that is a form of technological determinism (Johri, 2011). This instrumentalism also contributes to the multiple realities of networking technologies for the knowledge worker as contributing to professional autonomy and flexibility, easing access to information, knowledge and expertise fundamental to their professional role while also generating pressures and stresses of speed, work intensification and the erosion of the boundaries between work and non-work (Gregg, 2011; Megele, 2014; Wajcman, 2015). These multiplicities of technological determinism can be bound together as what Wyatt (2008) termed ‘justificatory determinism’ where technology is used to justify changes in organisations, work practices and professional normative expectations. Such expectations can include that professional learning becomes increasingly informal, self-directed and self-regulated as the pace of change is assumed to be too great for formal learning to keep up to date (Peña-López, 2013).

In terms of studies of learning, Twitter is framed as a digital marketplace for matching information seekers and providers and for ‘friendship-making’ (Java *et al.*, 2007; McPherson, Budge and Lemon, 2015; Paulin *et al.*, 2015).

Twitter has been shown to support professional learning in terms of information diffusion and forming new network ties by linking together users with similar professional interests (Lewis and Rush, 2013). In this latter case, some network ties developed in to fuller and deeper relationships yet many did not and the authors concluded that the networks they identified were far from forming a community (Lewis and Rush, 2013, p.11). Such accounts of learning on Twitter present impoverished understandings of learning. These studies treat learning largely as an unproblematic transfer of unchanging and immutable knowledge that is independent of the knower and the broader assemblages where it can be located. Ebner, Lienhardt, Rohs, and Meyer (2010, p.94) present a more complex account where Twitter enables a number of learning related functions to be performed: asking questions; giving opinions; changing ideas; sharing resources and reflection. As noted in Chapter 1, Twitter chat events are frequently positioned as examples of informal, social and experiential learning within some form of shared professional identity.

Mills and Chandra (2011) see Twitter as generating new conceptualisations of learning communities and the practices of such communities. Greenhow and Robelia (2009) in their studies on Twitter as a conference back channel cite Siemans (2005, p.4) to suggest that learning occurs within such back channels as “nebulous environments of shifting core elements – not entirely under the control of the individual”. This shift away from a focus on the individual can be seen in the context of communities on Twitter in general and the Twitter chat events more specifically, emphasising the role of these events in

generating, regenerating and maintaining sociability and solidarity around particular professional and discursive stances.

## Summary

In this chapter I have drawn on the literatures defining HRD, exploring online community and the nature of communities on Twitter and on professional learning as a socio-material accomplishment. All three components of this chapter: defining the domain of professional practice; the identification and meaning of community; and the enactments of professional learning, have been problematised in terms of the three dominant discourses framing my thesis. The fluidity of the definitions of HRD are discussed in relation to ideas of professionalism in the post-industrial society and the knowledge economy as well as framed by socio-material research perspectives. In this chapter I have also examined the socio-material entanglements of the Twitter chat events to surface the challenges of enacting online communities. In particular, I highlight how 'community' in the existing research is an effect of the Twitter API acting to make visible particular relationships and interactions that, in turn, generate particular dominant conceptualisations of community and forms of analysis of Twitter. Finally, by drawing on socio-material perspectives on vocational and professional learning practices, I explore how assemblages of professional identity making and notions of 'being a professional' are entangled with performative enactments of individualisation and employability. Such enactments are, in turn, assembled in interaction with the precariousness and vulnerabilities of the knowledge economy, network society and technological acceleration.

# Chapter 4: Methodologies and Methods

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## Overview

In this chapter I discuss the methods assemblage constructed for this study and justify the mixed-methods research design for investigating the Twitter chat events. My research takes a socio-material ontology that rejects the notion of human agency as isolated from the discursive and material contexts within which it is enacted. Based on this ontological position, I create a repertoire of research methods designed to embrace the complexities of both the Twitter chat events and the assemblages of the professional domain. Through drawing together an interdisciplinary mix of research methods, this thesis provides an original and important attempt to produce critical key insights in to how a professional defines itself in the age of social media and in the context of the knowledge economy and networked society.

The research framework and methods have sought to embrace the complexities of the network-assemblages of the research sites. Additionally, as discussed in chapters 2 and 3, the purpose of my study is concerned with the formation and maintenance of professional identity and professionalism in the context of a post-industrial knowledge economy enacted in a digital domain. My research approach converges on the ways in which social and economic forces associated with post-industrial capitalism, professional identity and the Twitter chat events are entangled together and the effects of these entanglements on performances of 'being a professional' in an online

environment. From this guiding purpose, my research is working to four related research questions of:

1. how is the professional domain of HRD defined and redefined in the events;
2. in what ways do the chat events collectively enact the concept of online community;
3. how do the events constitute the performance of professional learning and knowledge sharing; and
4. how do the entanglements of materials, technologies, text and people generate particular structures and patterns of interactions in the events?

This chapter commences with an overview of existing research on Twitter uses, arguing that the field is dominated by either quantitative methods using large volumes of data or by small-sample qualitative studies. I follow this with a discussion on implementing my theoretical positioning of the research as a socio-materialist ontology. Here, I draw on Law's (2004) method-assemblage and Markham and Lindgren's (2012) 'network sensibility' as research perspectives that aim to 'make sense of' the fluid complexities of social practices.

In the next section of this chapter, I describe the Twitter chat events as research sites of my study. I then engage in a discussion of the repertoire of research methods involving: descriptive statistics; social network analysis; content analysis and Critical Discourse Analysis. These different methods generate multiple 'grids of analysis' (Nespor, 1994) that are applied to identify and amplify different elements and effects of the research data (Law, 2004; Markham and Lindgren, 2012). Furthermore, these 'grids of analysis'

are formulated in interaction with the capacities for analysis from the data captured through the Twitter API (Application Programme Interface). The timing of tweets, the use of retweets, user-mentions, replies, hashtags, hyperlinks and geolocation data are all captured automatically. This enables the analysis of the data through basic descriptive statistics including activity metrics (Bruns and Stieglitz, 2013) and Social Network Analysis. Other aspects of content analysis and the Critical Discourse Analysis involved manual coding procedures. The different research methods are applied to different aspects of the research data to facilitate changes of focus between the whole network and different intra-actional components of the network-assemblages of these chat events. This approach has produced an original research framework for analysis of the emerging assemblages of professional identities in the digital domain.

The Twitter chat events are open and online and so can be understood as being in the public domain. However, researching these events raises a number of important ethical issues that require discussion and clarification. I outline the ethical dimensions of my approach to the research and why I adopted particular procedures in presenting the research data.

Furthermore, I attempt to address the materiality of my research practices in this study. As noted in Chapter 2 of this thesis (see the section: 'Defining technological determinism'), a study that has a focus on technology becomes entangled with some form of technological determinism: Wyatt's (2008) methodological technological determinism. In the case of this study, the assemblage of research design, research sites and methods are co-constitutively entangled with material technologies. So in discussing my research methods, I must also examine how material technologies are shaping my research practices (Adams and Thompson, 2014).

## Researching Twitter

There is a rich and continually expanding body of research on Twitter. These research studies have tended to focus on understanding user behaviours and the functioning of the technology in particular use-cases (Barnes and Bohringer, 2011; Williams, Terras and Warwick, 2013). In their paper mapping published research on Twitter, Williams, Terras and Warwick (2013) identified four areas of focus for existing research: the message; the user; the technology and conceptual understanding. They replicated Cheong and Lee's findings in 2010 that research on Twitter is dominated by a focus on the message or on the tweet. In contrast, Gao, Luo and Zhang (2012), in their overview of research on Twitter, found a methodological emphasis towards focusing on the user, as suggested by the dominance of such methods as interviews and surveys, rather than analysing the content of tweets or the effects of the technological functions of Twitter.

Message-focused research papers are primarily concerned with the words and symbols used in messages. Examples of such research include Page's (2014) study of corporate apologies on Twitter using approaches drawn from corpus-linguistics, studies using sentiment analysis (Chew and Eysenbach, 2010) or information exchange and diffusion (Rieder, 2012). Honeycutt and Herring (2009) make explicit use of the @ prefix of the functions of Twitter as a material marker of 'addressivity'. By focusing on data based on the functions of Twitter, this analysis did not look at the content of tweets to identify the extent to which significant conversations were occurring on Twitter.

Many studies on Twitter take advantage of the scale of digital data generated by Twitter and captured in the Twitter API. The structure of the data drawn

from the API, can nudge research towards descriptions of patterns of Twitter use based on counting particular mobilisations of the Twitter functions: numbers of tweets; number of users; numbers of followers and following; the use of replies, user mentions and retweets; and the use of the hashtags. While initial user-focused papers used such basic descriptive statistics, such research has expanded to include social network analysis and analytical methods associated with the 'computational turn' and prominence of 'Big Data'. Examples of the analysis of large samples of tweets include boyd *et al's*, (2010) study of retweeting behaviours which analysed 720,000 tweets from 437,708 users, and Rui and Whinston's (2012) study of user behaviours involving an initial analysis of three million Twitter accounts. Procter, Vis, and Voss (2013) study of Twitter use during the London riots of 2011 involved the analysis of 54 hashtags identifying 2.6 million tweets from 700,000 users and using computationally-identified clusters of tweets for further manual analysis.

The overall focus on understanding of what is happening on Twitter is mirrored in the repertoires of methods of many studies that privilege descriptive statistics, Social Network Analysis and content analysis (Williams, Terras and Warwick, 2013). Such research is concerned with understanding recurrent patterns in behaviours and structures in Twitter use at scale. Bruns and Steiglitz (2013, p.104) argue for a common or generic portfolio of metrics for analysing Twitter data where they conclude that standardised metrics support comparisons between Twitter use cases that in turn, "may lead to the identification of common genres of hash-tagged communication on Twitter".

Yet as Marwick (2014) argues, Twitter is a rich source of valuable and sizeable data for researchers but that "... inferences made on the basis of the



properties of a large data set are limited in what they can explain” (pp.109-110). While research on Twitter continues to be dominated by the analysis of data at scale there is a persistent stream of research activity using a range of qualitative and mixed methods (Stephansen and Couldry, 2014) involving interviewing Twitter users (Marwick and boyd, 2011), content analysis (Honeycutt and Herring, 2009; Ross, Terras, Warwick, *et al.*, 2011) and linguistic analysis (Zappavigna, 2014) and a very few studies using Critical Discourse Analysis (Erol, 2013; Kelsey and Bennett, 2014).

Kelsey and Bennett’s (2014) paper analysed the discourses, nuances and power relations that emerged around the prosecution of Paul Chambers following his ‘joke’ tweet that made a sarcastic threat to Nottingham airport. So this study analysed the wider discourse context of the trial and legal appeals rather than a body of tweets. Erol (2013) in contrast, engaged in a Critical Discourse Analysis of 65 tweets from 50 or more users concerning the murder of a Turkish journalist in the wider context of Turkish national identity and historical positioning of the Armenian genocide of 1915. He found that the Twitter exchanges did operate like a conversation between “two competing positions” (p. 754) rather than between individual people. These competing positions replicated mainstream discourses and, hence, mainstream power relations surrounding Turkish national identity. Erol’s research was focused on the Twitter exchanges of small number of people contextualised within discourses of Turkish nationhood, such analysis did not seek an analysis of the technology itself or make generalizable conclusions regarding Twitter.

There is therefore a wide range of methods to researching Twitter that I could draw on to analyse the emergence of particular definitions of HRD as a professional domain, the generation and maintenance of virtual communities

and the performances of professional learning in the chat events. In undertaking this research study I am seeking to draw on many of the different approaches used in these studies to analyse the network assemblages of these chat events in all their dynamic complexity. Yet how the theoretical perspective of assemblage theory can be operationalised in specific research methods is not clear. The following sections explain how I approached this challenge in the context of my own research.

## Enacting the theoretical stance

A major challenge for this study is to identify a repertoire of research methods to operationalise the research-assemblage within the frame of the theoretical perspective discussed in Chapter 2. As Law (2004) has stated, while a network assemblage can be discussed in the abstract, it only really ‘makes sense’ through empirical work. Law explicitly discusses method assemblages as being part of the world, as a researcher cannot be outside the world to view it. Law’s argument is that if practices are complex, fluid socio-material assemblages then research practices are also enacted in complex, fluid socio-material assemblages and the Romantic claims of researcher independence, and the goal of a single theory to explain the world, cannot be sustained. Research methods should be reformulated for this more explicitly unstable, ‘flowy’ and networked world in ways that avoid seeking certainty and generalisability: a methods mix that Law (2004) refers to a ‘praxiography’: the study of practices where there is no closure and that privileges both mess and complexity.

Furthermore, the research methods I adopt for this study must attend to the complex entanglement of material and social elements that intra-act to

constitute these Twitter chat events (MacLeod *et al.*, 2015). My methods-assemblage attempts to examine the material, textual, social and technological gatherings of the events (Bhatt and De Roock, 2013) while recognising that in doing so, I must select which of these components to examine in depth. My research attempts to work with the complexities of the assemblages of the events while necessarily concentrating on those components of the research site that seem to address matters of interest to my study.

Jackson (2013) provides an example of entering a network assemblage (although the metaphor of entering seems itself oddly reductionist) with the idea of 'the mangle' as a distinctly post-humanist research approach. The mangle draws on Pickering's (1992) studies of science practices that decentres the human subject and promotes a socio-material symmetry. Hence the potential for agency in both the human and material is found in co-constitutive mangles or 'method assemblages'. Jackson's (2013) example involves a constant shifting between the social agencies of human actors and the material agencies of, in this case, an office space in the emergence of the performances of academic practices. Jackson draws on Pickering's (1993) description of fluid emergence over time as actants shift between being discursive constructs into material 'realities' and back again. A further aspect of such fluid emergence in assemblages is the dynamics of resistance or inclusion of social and material components by those self-same components (MacLeod *et al.*, 2015).

However, the actual research processes used in these 'post-qualitative' studies remain elusive. Jackson and Mazzei (2012) critique the reductionism and essentialism implied in coding research data. They argue that data coding shifts the focus away from the micro enactments within 'the mangle'

towards macro concerns of general categories and representations. Instead, they proposed to map their network assemblages of concern using different theoretical perspectives (drawn from Derrida; Spivak; Foucault; Butler; Deleuze; and Barad) to focus on processes of descriptive mapping rather than the making of generalizable truth claims. It is this notion of mapping as 'making sense of' that is of particular interest to me when combined with Law's notions of multiplicities (2004) and applied to the Twitter discussion events.

In seeking an appropriate repertoire of methods, I was particularly drawn to Markham and Lindgren's (2012) discussion of methodological frameworks that are appropriate for the "complexity of networked, technologically-mediated social contexts". They suggest analysis as a "network sensibility" involving multiple visualisations of data that: (a) generates data and complexity by the creation of "multiple renderings of potential meaning"; (b) can help shift focus from objects to relations or flow by presenting multiple visualisations and potential explanations; and (3) aids reflexive and ethical research practice.

Markham and Lindgren's (2012) approach aligns with Jackson and Mazzei's (2012, p.5) focus on the transparency of how research questions emerge within the practices of reworking data as a means of demonstrating the multiplicities of meaning that can be identified within them. At the same time, all method assemblages are partial in terms of constituting "out-there-ness by condensing particular patterns and repetitions while ignoring others" (Law, 2004, p.113) and that "method always works not simply by detecting but also by amplifying a reality" (Law, 2004, p.116).

## Positioning this study

In constructing the repertoire of methods employed in this study, I necessarily embarked on the process of generating a specific network assemblage: a method assemblage (Law 2004). The research approach gathers its own assemblage in intra-action with the assemblage of the Twitter discussion events. The method assemblage enacts the research process as fluid and open-ended exploration (Markham 2013). Yet in performing such exploration, I also engage in selecting, ignoring or “amplifying” particular realities or data to generate “findings of interest” (Law 2004, p.38) that are also “... a conversation or a moment in context” (Markham 2013, p.1) rather than a conclusion or generalizable finding.

Given the focus on discursive and textual practices, a key method used in the research is a discourse analysis approach based on Halliday’s (1978) Systematic Functional Linguistics (SFL) whereby discourse performs functions within wider assemblages of social practices. I have used Fairclough’s (2003) approach to Critical Discourse Analysis (CDA) and in particular, the notion of ‘orders of discourse’ involving: (i) linguistic styles and (ii) genres as discursive structures and (iii) discourses as semiotic assemblages that co-constitute social worlds and so are enmeshed with issues of social practice, materiality, power, society and culture (Rogers, 2012; Müller, 2015). Combining analysis of the discursive content and structures with CDA amplifies the semiotic elements in the mangle of practices of the chat events (Freitas and Curinga, 2015).

The Twitter discussion events that are the focus of this research are understood as a site “assembled as a network of practices” with “multiple overlapping worlds that may be lashed together as temporary stabilisations”

(Fenwick, Edwards and Sawchuk, 2011) that generate particular effects. The Twitter discussion events occur as gatherings of assorted assemblages involving the event websites, the text and multimodal resources posted on these, the organising group and individual human participants, network and internet connectivity, the Twitter applications used, web browsers, the functions of Twitter (especially the hashtag and retweets), internet protocols such as http, computers, locations, notions of learning and development as a profession and practice, urls and links, professional standards, commercial enterprises and investors in social technologies, hardware, software and connectivity. Some of these components are more visible in the assemblage while others are 'hidden' behind the presentation of the discussion events as discrete, bounded and unified events. My study is, therefore, concerned with exploring material-discursive actions (Gherardi, 2006; Fenwick, Edwards and Sawchuk, 2011) in the chat events as they enact a definition of HRD; constitute online communities and generate performances of professional learning.

Therefore, a key aspect of the analysis of the discursive and textual practices assembled in the Twitter discussion events, is the analysis of translations as they generate temporary effects of social ordering, alignment and stabilisation as well as effects of diversification, fragmentation and multiplicities. The function of discursive mediators such as the genre of the chat events and the inscribed functions of the Twitter platform are important points of focus of my 'method assemblage'.

In the next section of this chapter, I will outline the gathering of different research methods used in making sense of the Twitter discussion events and the discourse analysis of those events. Before doing so, and to provide some

context for the remainder of this chapter, I describe the research site of the Twitter chat events.

## The research site

Howard (2002) argues that any study concerned with relations and interactivity begins with identifying some form of perceived network or grouping. The research site for this study was a series of synchronous online professionally-focused discussion events held on a regular basis on Twitter. There are a large number of these synchronous Twitter discussion events covering a range of professional, health, recreational, or specific community interests (Gnosis Media Group, no date). The professional-orientated discussion events include almost all professional domains from financial and businesses analysts to medical clinicians, teachers and information systems engineers, often with a particular niche focus such as industry sector, location or practice (e.g., human resources and social media). For the purposes of this research, two chat event series were selected from a list of eight learning-focused chat event series. The selection criteria were that:

1. the professional domain of the events was familiar to me to avoid misunderstandings arising from, for example, technical language;
2. the events were not limited to current or previous staff of a specific organisation;
3. the events continue to take place on a regular basis and with a minimum of 20 participants per event; and
4. there was some evidence of the events being embedded in a wider web sphere as indicated by links into or out of the discursive events such

that a 'hypermedia discourse' (Shum, 2007) may be identified.

Hypermedia discourse emphasises relationships between a wide range of textual and material content that is diverse in terms of content, form and format.

The most obvious component in assembling the chat events is the hashtag label itself and its aggregating function. As noted in Chapter 3 (see the section: 'Hashtag communities'), the use of the hashtag is a marker of relevance to a network beyond that of a user's followers. The hashtag is a key actant in the generation of ad-hoc groupings (Bruns and Moe, 2014). Indeed, the chat events clearly enact the idea of speaking at a public gathering invoked by Bruns and Moe (2014, p. 18) in their analogy of the hashtag function of Twitter. In assembling my research data, the hashtag function, in combination with the Twitter API, simplifies the collection of data as "hashtags are designed to make tweets more discoverable" (Bruns and Moe, 2014, p. 23). Yet this ease of collection renders visible the users of the hashtag and so renders invisible users who do not use the hashtag but, nonetheless participate in the chat events. The most obvious example here are so-called 'lurkers' who do not actively contribute tweets at the time of the event but simply observe the chats and make use of the content in other ways. Other excluded voices are those who engage with event participants on the event topics but do not use the relevant hashtag. There were a few instances where event participants were in a direct conversation with one of their followers that was relevant to the chat event. So the event participants continued to use the event hashtag yet their interlocutor continued not using the hashtag, and so only fragments of that conversation were captured for my research. So the particular technologies using the Twitter API generated a particular framing of my research site through coding in boundaries of inclusion and exclusion that were not necessarily clear to me as the researcher (Adams and



Thompson, 2014).

In Chapter 5, I detail the volume and diversity of the data collected and analysed. This involved 12,061 tweets collected in the main period of data collection in 2013 along with over 80 other data items such as blog posts, tweeted images, reports, and other documents and material. A further 518 tweets were collected and analysed in the earlier pilot studies. All tweets were included in the statistical, social network and content analysis which helped in identifying particular sequences and events of interest that were subject to Critical Discourse Analysis (CDA). In total, 1,654 tweets were included in the CDA (see Appendix 2 for a screen shot taken while undertaking the CDA using NVivo).

It should be noted that the data boundaries of these online events cannot be clearly drawn. So the research 'site' is a network of digital objects, text items and images that constitute knowledge production, exchange and reflection (Mäkitalo, 2012). It is this complexity of the research site itself that provides the initial challenge for the selection of a research approach for this study.

## Methods

The following section describes the repertoire of research methods employed in this research study.

### Data gathering

As described earlier, two discussion event series were selected for this study from a short-list of eight learning and development or human resource development focused communities. The two selected communities will

hereafter be anonymised with the labels of Chat A and Chat B.<sup>3</sup>

The data collection occurred in two phases: for a pilot phase, I collected material from single events for the purposes of undertaking experiments with particular analytical methods; I then embarked on a more systematic collection approach over a three-month period as the main research material for this study.

The material collected from all the events and their related 'web spheres' (Schneider and Foot, 2005) included the event tweets, user mentions, additional hashtags and embedded images and GIFs<sup>4</sup>; blog posts that introduced and discussed the event topic and any further material hyperlinked to from that original post; material from urls included in tweets and participant Twitter user profiles. Additionally, I collected material posted after the event discussion that provided further reflections from event participants in their own personal and/ or professional websites and blogs. These reflections can often involve a form of retrospective coherence-making as part of that individual's personal professional development as well as including the re-presentation of participants' own texts.

### The pilot studies

An initial small-scale pilot study was undertaken in 2010 from one event of Chat B held in October 2009. This pilot study was conducted as an experiment in the use of conversation and discourse analysis. The data collected for this small-scale pilot study was limited to the 'official' event

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<sup>3</sup> A later section in this chapter discusses research ethics and privacy in the context of the sort of public domain data being used here.

<sup>4</sup> Images using the Graphical Interchange Format.

archive without reference to the data linked to by the participants. This approach was used to keep the volume of data manageable.

A further pilot study was conducted using data from the two event communities. Two events were selected from archives of Chat B collected from the event community website over a three-month period in 2011. The two selected events addressed the themes of the use of metrics in HRD provision and the nature and experiences of networks and collaboration for HRD practices. One event from Chat A was selected which addressed the topic of HRD professional standards. All three selected events provided rich data on professional identity construction and community formation.

The pilot studies confirmed the usefulness of adopting a combination of content and discourse analysis methods in understanding the Twitter discussion events.

### The main study

The main sample of events for this study were taken in a timeframe from 5<sup>th</sup> September 2013 to the final event on 19<sup>th</sup> December 2013. Within this timeframe there were seven Chat A events and 15 Chat B events. Both discussion communities cancelled the events scheduled for 28<sup>th</sup> November (Table 1).

While there have been some changes to the operations of the Twitter platform since this data was collected (Greenberg, 2016) these have not affected the format and function for the Twitter chat events. Furthermore, the format of the chat events has remained the same (see Figure 7, page 153) while the number of Twitter chat events have seen a large increase since 2013. Therefore, the research methods and analytical frameworks discussed in this chapter remain relevant to contemporary practices on Twitter in general and

the Twitter chat events specifically.

Chat A			Chat B		
Date	Theme	Nos tweets	Date	Theme	Nos tweets
05/09/	Learning and motivation	587	05/09/	Reverse psychology	346
19/09/	Design Thinking and learning design	604	12/09/	Learning, anxiety and intention	478
03/10/	Surveys	487	19/09/	Learning from travel	381
17/10/	Big Data	730	26/09/	Learning communities	638
31/10/	Poor L&D practices	467	03/10/	Enabling perseverance	420
14/11/	Workplace Happiness	647	10/10/	Vicarious learning	530
28/11/	Event cancelled		17/10/	Cognitive resources	448
12/12/	Technology and learning	694	24/10/	Learning from others' work	768
			31/10/	Fear and learning	686
			07/11/	Social Media for learning	564
			14/11/	Individual and organizational habits	542
			21/11/	Organizational Culture	733
			28/11/	Event cancelled	
			05/12/	Learning from the back channel	367
			12/12/	Empathy, creativity and learning	441
			19/12/	Holiday Hour	505
		<b>4217</b>			<b>7847</b>
					<b>12061</b>

**Table 1: The sample of chat events**

The Twitter data was gathered using Tweet Archivist<sup>5</sup>. This service draws data from the Twitter Application Programming Interface (API) including the time and data of each tweet, the author and 'user mentions' (including replies, mentions and retweets), hashtags, and geolocation data. I also manually captured the related 'web sphere' material related to the events and converted these to PDF format.

<sup>5</sup> <https://www.tweetarchivist.com/>

The Twitter data was 'cleaned' to exclude tweets posted outside the start and finish of each synchronous discussion event. This was to (a) avoid a domination of tweets promoting each event and (b) to enable a comparison of the captured data with the official discussion event archive to verify that all event tweets had been captured.

The influence of technology on the nature of the analysis can be seen embedded in the limitations and opportunities of the Twitter API. While there has been much discussion on the collection of data from Twitter (for a brief overview of the main issues in data collection from Twitter, see Gaffney and Puschmann, 2014) by using complete data only from the synchronous events, I avoided the issues associated with sampling through the API. However, Tweet Archivist does not collect data recording when tweets are favourited and by whom. It is possible that behaviours associated with favouriting are important in the structuring of the Twitter discussion events but this cannot be analysed in my study<sup>6</sup>.

## Data analysis

This section on data analysis provides an initial overview of the repertoire of research methods I adopted for this study. The section then continues with more in depth discussion of the methods used with some illustrative examples of the completed analysis. While the different methods used may

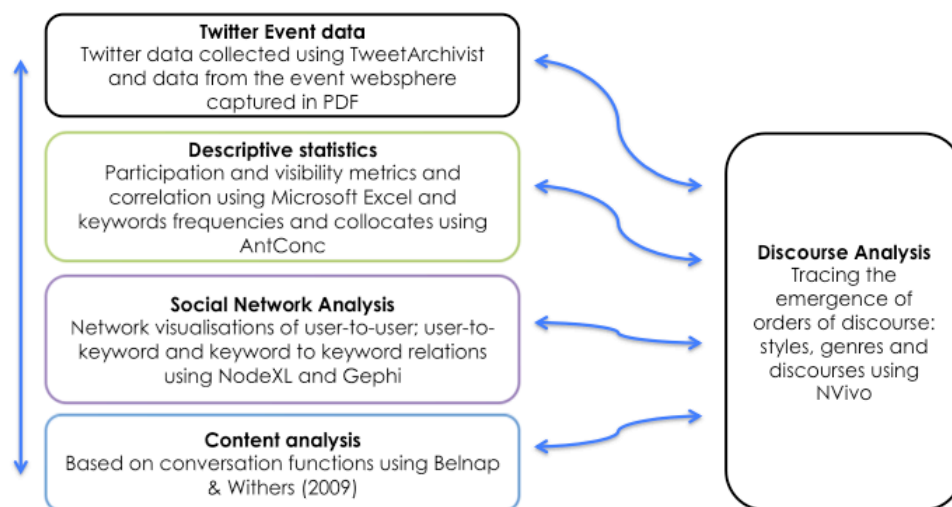
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<sup>6</sup> I have participated in a number of these Twitter discussion events outside the sample of events used in this study. From these experiences, I would suggest anecdotally that there is limited use of the 'favourite' function in Twitter by the event participants. But that conclusion may simply be a form of confirmation bias on my part.

be presented as a linear development from one to another, the reality of the analysis was an iterative one of constant comparison between the different forms of analysis undertaken.

These initial phases of analysis were designed to provide a sense of the structural patterns of the Twitter events and identify the common building blocks of the discussions. The data analysis involved the use of basic descriptive statistics, social network analysis and content analysis within the discursive network assemblages (Belnap and Withers, 2008; Panagiotopoulos and Sams, 2012). This initial analysis was followed by Critical Discourse Analysis on specific aspects or components of the data.

This initial analysis of the Twitter data was structured as follows:



**Figure 4: Structure of the data analysis and methods used**

The structure of the remainder of this chapter follows the structure of the four approaches to data analysis with the initial analysis involved the three interacting components: descriptive statistics; network analysis; and conversation content analysis and then finally addressing the approach to the critical discourse analysis:

1. Descriptive statistics involves the use of basic measure of location, spread and correlation in participation rates and activity to identify possible patterns of behaviours and points of unusual behaviour as potential sites of interest within the overall data. This analysis was mainly undertaken using Microsoft Excel<sup>7</sup> and keyword frequency analysis was done using AntConc<sup>8</sup>.
2. Social Network Analysis including the analysis of connections of:
  - a. people to people
  - b. people and keywords
  - c. keyword to keyword.

This analysis was undertaken using two Social Network Analysis programmes that enabled network graph data to be presented and analysed: NodeXL<sup>9</sup>, a template extension of Microsoft Excel and Gephi<sup>10</sup>, a FOSS<sup>11</sup>.

3. Content analysis involving applying the functional categories identified by Belnap and Withers (2008) in analysing unstructured face-to-face learning events to the Twitter event transcripts. Belnap and Withers provide sixteen functional categories for analysing discussions in terms of (i) initiating and building on substantive

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<sup>7</sup> <http://office.microsoft.com/en-gb/excel/>

<sup>8</sup> <http://www.antlab.sci.waseda.ac.jp/software.html>

<sup>9</sup> <http://nodexl.codeplex.com/>

<sup>10</sup> <http://gephi.github.io>

<sup>11</sup> Free and Open Source Software

content; (ii) assessing the validity of prior contributions; (iii) additions based on preceding contributions and (iv) various utterances that do not make a significant contribution to the structure or content of the discussion (see Appendix 1 for all 16 categories used).

4. Critical Discourse Analysis using Fairclough's (2003) notion of orders of discourse involving (i) styles; (ii) genre and (iii) discourse. The Twitter archives and other textual material were analysed in QSR NVivo.

The purpose of this analysis was not to provide a complete picture of the Twitter discussion events but rather to surface patterns, dynamics and effects of potential interest. In doing so, I am also burying other patterns and dynamics to generate, at best, a partial sense of the complex and fluid phenomena.

## Descriptive statistics

The descriptive quantitative analysis and activity metrics used were based on Bruns and Stieglitz (2014) analysis of Twitter streams based on participant activity and participant visibility. Activity metrics refers to the number of tweets contributed by each participant, from which may be inferred the participant's commitment to the specific discussion event.

The activity metrics can help in identifying patterns of participation. Such patterns of participation can be anticipated to include the majority of tweets coming from a smaller number of participants with a 'long tail' of less active contributors as seen in other studies (Lotan *et al.*, 2011; Ross, Terras, Warwick, *et al.*, 2011; Bruns and Stieglitz, 2013) and indicates the potential importance



of these more prolific participants in shaping the discursive structures of the specific events. This form of analysis can be used to surface divergence of patterns between events and event communities as well as commonalities.

### Participants: activity and visibility

Bruns and Stieglitz (2014) position the Twitter technologies as instruments of human activity rather than actants in their own right. They go on to argue that user-metrics provide a sense of user discursive practices on Twitter. Such metrics as number of tweets or retweets tend to assemble amplifications of particularly active participants that the authors suggest can be treated as indicators of their importance or influence (Tedjamulia *et al.*, 2005; Bruns and Stieglitz, 2013). This emphasis on the more active participants can also be reinforced by the ease of generating simple bar charts from such ‘counting’ data. However, Anderson (2006) suggests that the cumulative effects of the ‘long tail’ of activity can be significant. In this case, the tail of lower level participant activities may have important effects in terms of the reach and visibility of the Twitter discussion events across the wider ‘web sphere’ (Schneider and Foot, 2005) as a dispersed and heterogeneous network assemblage.

Bruns and Stieglitz (2014) go on to describe in detail the entanglement of the identified metrics with the metadata collectable from the Twitter API regarding senders and recipients or tweets, timestamps, hashtags or urls, etc. They also acknowledge the constraints imposed by the API not just in terms of the sampling of tweets but also where, for example, user mentions and direct replies (and thus direct conversations, see Honeycutt and Herring (2009)) cannot be easily automatically distinguished. Bruns and Stieglitz maintain their humanist perspective in concluding that quantitative activity metrics along with qualitative analysis are still required to more deeply

investigate the activities of specific actors on Twitter.

Overall, using activity levels as a way to 'slice in to' the data may be useful but requires a broader focus on discursive structures within and between events to avoid a 'Machiavellianism' (Miettinen, 1997, unpaginated) that: "ignores such phenomena as learning, development of expertise, complementarity of resources and know-how in network construction". As Ford, Veletsianos and Resta (2014, p.19) state, these statistics provide only limited and partial insights in to the structures and practices of an online community.

### Temporal analysis

By temporal analysis, I mean the pace of the events and the volume of tweets contributed over the duration of the chat events. (Bruns and Stieglitz, 2013, p.99). Bruns and Stieglitz argue that such analysis may be useful to identify key incidents for further qualitative analysis as, for example, identifying points in each chat event where particularly heated debates occurred. Also, the patterns identified may indicate particular discursive strategies and practices as the volume of tweets at any given time may be driven by original tweets, retweets of the use of other digital material.

The intention of the descriptive statistical analysis is to identify particular patterns of activity within and between the chat events. By adopting Markham and Lindgren's 'network sensibility' (2012) I seek to gain a sense of the dynamics of the chat events as a whole while also seeking to identify potential points of entry for the more in-depth forms of analysis.

Given the relational ontology of the method assemblage, I next focus on the structural and relational effects within the events and turn to Social Network

Analysis.

## Social Network Analysis

Social Network Analysis (SNA) has recently seen a large growth of research activity partly driven by the increased popular use of social networking sites (SNS), increasingly accessible software and by a business and managerial emphasis on 'networking' (Scott, 2013, p.1). SNS technologies are deeply entwined with the notions of the network society and networked individualism discussed in Chapter 3. Social networks are constituted by nodes connected through ties or edges. The participating nodes in a network may be individual people, teams, organisations, groups, materials or ideas (Kozinets, 2010; Scott, 2013). SNS involve the performances of enacting social capital (Jordan, 2016) that generate visible and traceable ties between network participants. SNA is one approach to making these links visible and so assists in exposing components of the processes of assembly of a social material assemblage (Suthers *et al.*, 2013).

The unit of analysis in SNA is not an individual actant or node (person, object, text etc.) but the ties or links between nodes in a network (Laat *et al.*, 2007). So the Twitter chat events involve the gathering of diverse elements in to an intra-action with the event hashtag: the event hashtag is made meaningful in the production of the chat event activities, and such activities are only gathered in to the event by mobilising the particular hashtag. It is through the development of these relationships that the particular assemblage is territorialised or generates some form of boundary (Howard, 2002).

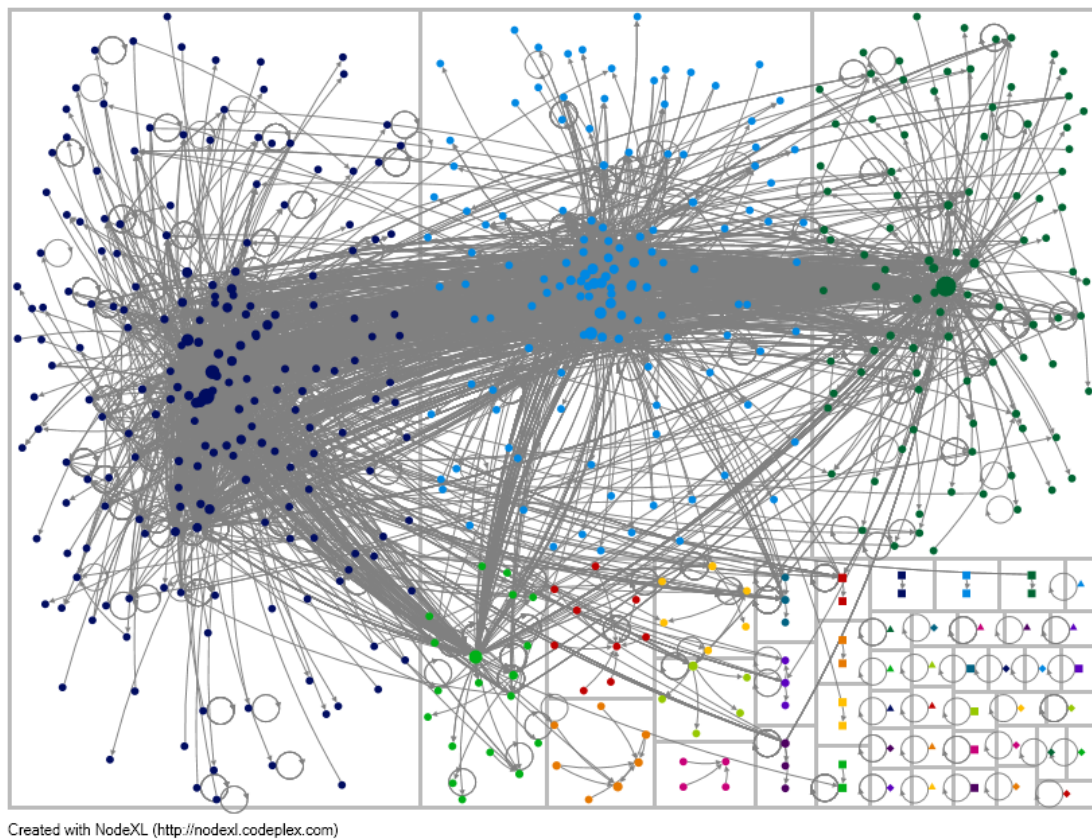
SNA is closely associated with the network diagrams produced by the different software products available for SNA. These SNA visualisations

present as a complete picture only a partial framing of who or what may be included on the network being analysed. Mayer (2012) notes the power of network visualisations in their presentation as self-evident facts rather than what they are: the products of complex and opaque socio-technical assemblages. These socio-technical assemblages involve hidden algorithms of analysis such that the software itself performs elements of the role of the researcher (Adams and Thompson, 2014, p.14). Not only does the software perform many of the technical calculations of SNA but also the specific software requires the active enrolment of the researcher in assembling the data in particular ways. Many accounts of SNA studies include detailed descriptions of the procedures for assembling the data, such as 'cleaning' and formatting log file data to be readable by the selected SNA software (Gruzd, Wellman and Takhteyev, 2011; Takhteyev, Gruzd and Wellman, 2012; Conaldi and Lomi, 2013). Thus, the SNA software can be positioned as an active participant in performing the method assemblage (Law, 2004) and the enacting of the distributed expertise common in the act of research itself (Adams and Thompson, 2014).

The particular framing of SNA is achieved by the technological assemblage of the SNA software entangled with the data generated from, in my case, the Twitter API. The workings of the technologies involved result in the exclusion of, for example, those who attended or observed the event but did not actively participate in the event, or those who did participate without using the relevant hashtag, or participated by exclusive use of the 'favourite' function on Twitter. So, by not generating particular data traces, or not capturing the data traces, certain participants may have been excluded from my analysis by the technologies I employ for my research.

### Approaching Social Network Analysis

As a component of my methods-assemblage for this study, how I consider SNA as territorialising the chat events is an important factor in using SNA. I am treating the two discussion communities as sub-networks within a larger clustering of networks of practitioners and related 'interested others' in the professional and practitioner domain of learning and development or human resource development. This approach was confirmed through the SNA analysis that surfaced the (social) linkages between the two event communities and is presented as a sociograms (Figure 5):



**Figure 5: A single network view**

The SNA approach I used may be understood in terms of investigating whole networks and then seeking out partial networks that are ego-centric, based on a specific actor or are based on specific components of social activity

(Kozinets, 2010; Scott, 2013). The socio-centric approach to SNA is of particular interest here as the interest in this research is not on the links between nodes but rather the mobilisation of the whole discussion event network or community (Jones, 2014).

### Centrality

The concept of Centrality is an important aspect of SNA as centrality is concerned with the positioning of a node within a network structure. Centrality intends to provide an indication of the structural influence of a node or actor in a network in the diffusion of resources through the network. Actors or nodes can be termed as being either central or peripheral in the network structure. But notions of centrality and peripherality vary not just between networks but also depending on the focus of interest in the study and so there are a different measures of centrality. For example: (i) Closeness Centrality is concerned with the social distance between nodes and is often used as a measure of influence; (ii) Betweenness Centrality measures the least number of ties between nodes indicating nodes as passage points of intermediaries within the network assemblages; and (iii) Eigenvector Centrality measures the extent of connections between well-connected sub-groups of a network suggesting a higher level of influence in, for example, mobilising actants around particular discursive translations (Smith *et al.*, 2009, 2014; Scott, 2013). However, these measures of centrality tend to assume all ties are equal and so to count the number of ties to a single node is an unproblematic indicator of the level of influence of that node (Enriquez, 2010).

Smith *et al.*, (2014, p12) refer to some Twitter users as “hubs” that are “relatively rare highly connected users”. They refer to “bridges” as less connected users who perform a function in the network of linking together

otherwise disconnected sub-clusters. The SNA assists in identifying hubs and bridges that can be investigated as actants of interest whose discursive strategies may steer the processes of translation, as intermediators and mediators.

Markham and Lindgren (2012) state that looking beyond the essential positivism of many SNA approaches, sociogram visualisations provide clear articulations of patterns within a wider network of meaning-making. Jordan (2016) argues that measures of centrality can help identify brokerage functions within a network visualisation. A higher Betweenness Centrality suggests potentially important brokerage function connecting network nodes that would otherwise remain unconnected.

Mitev (2009, p.18) discusses using “bigger” discourses to understand the processes of translation in Actor-Networks she was investigating. Similarly, I engaged in iterative processes of engaging with wider discourses of, for example, organisational management, professional identity, technology, knowledge and the networked society, to interpret the specific communicative acts of the chat events. This analysis then took me back to re-examining the prominent discourses dominating across the chat events. Breuer *et al.*, (2009, no pagination) argue that the visualisation of social networks creates an “intuitive understanding of networks and their characteristics even if they are both large and complex”. Hence SNA contributes to a complex and emergent assemblage of methods appropriate to the investigation of complex, emergent and networked contexts. Other forms of analysis are required to make sense of the emergence of particular network patterns and interactions (Enriquez, 2010). Laat *et al.*, (2007) argue that the SNA of network participants can be complemented by the analysis of the content of communications and point to studies of computer mediated

communication (CMC) and coding schemes that are discussed later in this chapter.

### Keyword networks

The discursive themes that emerge during the discussion events are also components or actants in the network assemblages of these events. I adopted a keyword-based approach as part of the 'social' network analysis using word frequencies and collocates as a means of explaining discursive themes in each event. This form of analysis, often called 'co-term' analysis, has been used in a number of ANT-inspired studies in the field of scientific communication and later extended to domain analysis, corpus linguistics and other qualitative research methods (Jacobs, 2002; Rusk and Waters, 2014). The approach provides quantitative analysis and network-like visualisations of the conceptual relations between words.

The collocates of the most frequent words were identified using the corpus linguistics software, AntConc. This identified a complex and largely unhelpful visualisation of the relations between words and was dominated by common words ('and', 'then', 'so', 'the', and so forth). By removing these common words; aggregating similar words and experimenting with different threshold frequencies for inclusion, key themes and relations are identified: Outputs of the co-term analysis and key word collocates can be seen in chapters 6 and 8 (Figures 20 and 36).

While a seemingly simplistic approach, co-term analysis provides the space for the sense-making and interpreting of data (Teil and Latour, 1995 cited in Jacobs, 2002, p.550) that aligns with my broader sense-making approach (Markham and Lindgren, 2012). This approach surfaces multiple readings of the data as well as identifying different points of entry in to the content of the



discussion events. The processes of developing and ‘thinking about’ the visualisations reinforced the sense of the complexities and patterns that can be surfaced and emphasised in the research data (Markham and Lindgren, 2012). Yet this data does not suggest how these themes emerged and how the discursive practices of the events enabled particular themes to emerge and the possibilities of other themes to be suppressed or made invisible. As Howard (2002) argues, SNA is a useful tool for generating broad understandings of the research data that then enables qualitative approaches to be applied to more tightly defined samples of the network activities.

## Content analysis

Content analysis is increasingly prominent in the field of Computer Mediated Communication (CMC) and especially in educational contexts and the analysis of the online interactions of learners. A range of learning orientated content analysis coding schemes include those by Gunawardena, Lowe, and Anderson (1997), LaPointe and Gunawardena (2004) and Rourke, Anderson, Garrison, and Archer (2001) which were often implemented to enable initial qualitative text analysis to be reduced to code labels to allow quantitative analysis to take place (Gerbic and Stacey, 2005). Content analysis is concerned with patterns, structures, forms and the meanings and functions these may generate (Naidu and Jarvela, 2006).

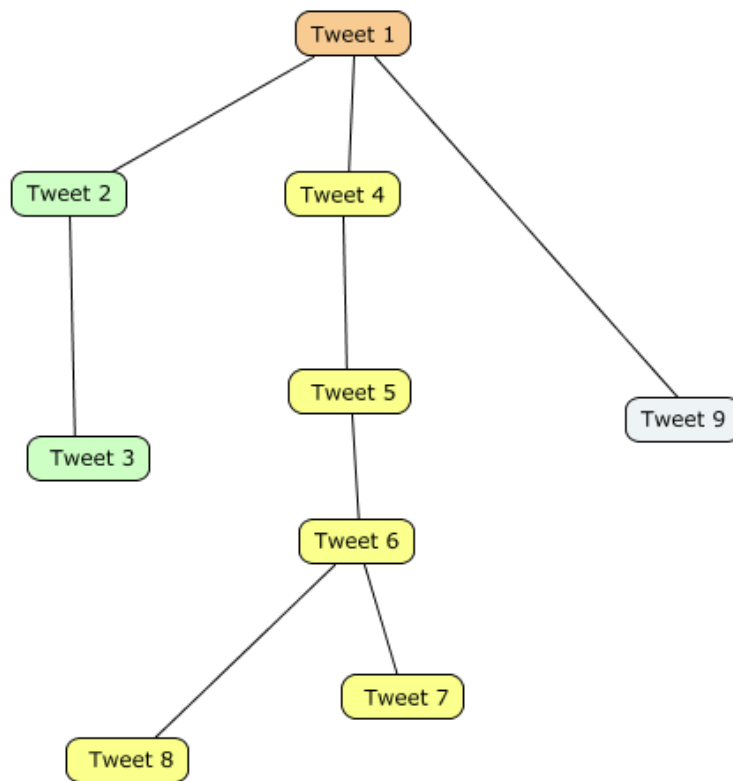
For the purposes of my study, and to make sense of the sample of Twitter discussion event data, I was initially interested in understanding the characteristics and structure of the event exchanges. As such, a number of studies combine SNA with content analysis in the examination of the textual interactions in online exchanges (Rienties *et al.*, 2009). Furthermore, the coding schemes developed for the study of online learning tended to seek to

operationalise specific theories of learning and knowledge, or specific ways of thinking and learning or focused on specific issues of interest such as online presence (De Wever, *et al.*, 2006, p.23). The one instrument concerned with interactional exchange patterns was the Fahy *et al.* (2000) Text Analysis Tool (TAT) but this had a number of challenges in being applied to 'instructor-less' Twitter discussion events. Such discussions often appear complex without the traditional educational discursive structure of *initiate – response – evaluation/ feedback* (Bloome *et al.*, 2005) and do not account for the effects of specific technologies on the structure and language of online discussions (Isari, Pontiggia and Virili, 2016).

Belnap and Withers (2008) developed and tested a content analysis tool for classroom based small group work that was 'instructor-less' and lacking a "strict pedagogical purpose" (2008, p.3). They provide 16 functions of individual utterances that were aggregated to six categories: (i) 'building' categories that contributed new suggestions or propositions to the discussions; (ii) 'adding' that involved directly building on preceding utterances; (iii) 'validating' that involved evaluations of preceding utterances; (iv) 'continuations' that involved restating or retweeting preceding tweets ; (v) 'simple' comments such as "hi", "yes" or "I agree"; and (vi) 'social' comments.

The structure of conversation on Twitter was visualised using the Discourse Structure Analysis (DSA) (Holmer, 2008) approach with Belnap and Withers categories. DSA provides an approach to visualising the structure of overlapping and non-linear online discussion threads within the Twitter timeline. DSA visualisation links tweets that belong to one another as replies or retweets and separates unrelated tweets into their appropriate threads. Thus DSA assists in making sense of the complexities of unstructured

discussions identified by Belnap and Withers (2008, p.8) including: sequences extending over many exchanges; overlapping exchanges and sequences; short sequences tending to be cut off prior to a conclusion and sequences re-emerging later in discussions.



**Figure 6: A visualisation of the branch structure of a chat event discussion**

Figure 6 shows a typical branch structure of an extended sequence of threaded interactions from the same of chat events. These interactional sequences occurred over a six-minute duration in a single event and so were extracted from a total of 50 or so tweets posted in that period. However, traceable threads of this length or longer were not common and the majority of traceable threads involving only one or two tweets.

Combining content analysis and DSA creates different understandings of the processes of the Twitter chat events. Using this understanding, along with the

analysis from the other methods used generated a number of entry points of interest from which to start the Critical Discourse Analysis.

## Critical Discourse Analysis

The preceding methods enabled a 'network sensibility' (Markham and Lindgren, 2012) that generates multiple readings of the research data and surfaces different and fluid potential lines of enquiry in to the Twitter discussion events. These lines of interest surfaced through this analysis identified points of entry to 'zoom in' to the data using Critical Discourse Analysis.

Discourses accomplish actions. For example, constituting the label of a 'thing' or action acts to define and regulate the scope of that thing or action. Through discursive action, the definition is treated as settled and attempts to question it or deviate from that settled position are either trivialised or rejected. For example, Ziegler, Paulus, and Woodside (2013) show how particular ways of disposing of coffee grounds by campers is discursively regulated and particular practices of disposal are mobilised as markers of inclusion in and exclusion from particular communities of campers. Discourse is a component of the "relations of power" that are constituted within socio-material assemblages (Ringrose, 2011, p.602).

In adopting Critical Discourse Analysis (CDA) for this study, I have understood the notion of discourse as functional rather than linguistic and material as well as social. The socio-material discursive practices of interest include those concerning alignment, ordering, inclusion and exclusion through processes of translation, intra-action and inscription (Bergquist *et al.*, 2008; Freitas and Curinga, 2015) as these stabilise and territorialise the

discussion events. The processes of translation generate power effects through privileging particular realities of the professional domain (Harman, 2012). Power can, therefore, be seen in how discourses shape, order, dominate, include and exclude different realities. Hence, relations of power are critical to the production of a “privileged version of things” (Marshak and Grant, 2008, p.59).

Discursive practices are productive and generative components of practice assemblages. For example, in discussing Latour and Woolgar's (1986) analysis of the practices of scientists, Law (2004, p.28) highlights the mobilisation of particular discursive strategies that seek alignment with preceding scientific papers, standard bodies of knowledge inscribed through procedural protocols or expectations set within scientific instruments to generate a privileged version of the practice of science. Critical Discourse Analysis (CDA) surfaces the discursive practices that may generate both the restrictive effects of stabilise existing relations and networks and the expansive effects of alternative realities and new possibilities within and across different assemblages (DeLanda, 2006).

A key concept in the operationalised of Fairclough's (2003) approach to discourse analysis is the construct of 'orders of discourse'. Orders of discourse consist of: (i) linguistic style or *ways of being*; (ii) genre as linguistic *ways of acting*; and (iii) discourses as *ways of representing* which in the context of this study may be recast as *ways of assembling*. These orders of discourse interweave together as a social practice that generates a control of linguistic variation within the Twitter chat events.

**(i) Linguistic style** refers to particular ways of using language, for example, as a participant in these Twitter discussion events. Style includes the use of

specific linguistic resources such as pronouns, modal verbs, qualifiers, questions and so forth that indicate situated ways of performing a function (Fairclough, 2003; Rogers, 2004; Lewis and Ketter, 2012). Furthermore, linguistic style is linked to the performances of particular identities through repeated practices (Bourdieu, 1977) and to wider social practices (Bucholtz and Hall, 2005). Styles are linguistic facets of broader communicative structures or genres (Chouliaraki and Fairclough, 2010).

**(II) Genres** are ways of acting in a discourse context such as in writing a job application. Genre can be understood as recognisable and repeated structures (Yates and Orlikowski, 1992; Bax, 2011) and can be applied to a range of materials such as to images video and audio artefacts (Russell, 1997).

Following Bakhtin (1986), genre and style are understood as co-constitutive as “style is governed by genres and it transforms them” (Lorino, Tricard and Clot, 2011) through translation (Russell, 1997). So my research has sought to identify, for example, genres of participating in Twitter discussion events and genres of performing being HRD practitioners in these events.

**(iii) Discourses** refer to semiotic assemblages that co-constitute of and with social worlds and so are enmeshed with issues of social practice, materiality, power, society and culture (Fairclough, 2005; Rogers, 2012).

Fairclough’s orders of discourse, therefore, extend beyond texts to include other material and semiotic components within an assemblage. CDA is a key component of my methods-mix in surfacing the emergence of productive and restrictive power dynamics within the chat events and the shaping of privileged realities of the professional field.

## Genre and style

As a way of acting linguistically, genre and style provide a useful starting point in presenting an analysis of the Twitter discussion events.

Genre is characterised as a schema or category for text-acts, for example, the Western as a film genre (Van Leeuwen, 2005) or the discursive structural norms of a job interview (Fairclough, 2003). Van Leeuwen (2005) positions genres as being based on linear series of communicative moves that perform a specific communicative act. The generic structure of the Twitter discussion events can thus be understood as a genre consisting of a linear series of repeated communicative actions. So genres emerge as relatively stable recurring patterns of discursive interactions: as practices stabilise within a network-assemblage, so they are identified as genres that, in turn, further stabilises practice (Bergquist *et al.*, 2008) and generate ordering effects within the assemblage.

Similarly, for Fairclough (2003), genres occur as activities that are purposive. Genres are often linked to emergent structures of discourse events that, in turn, generate shared expectations and norms of participation such as turn-taking (Bloome *et al.*, 2005), initiation (asking a question) and response (answering the question). Again, we can see the generic structure of the Twitter discussion event as a genre itself.

The translating of the Twitter chat events as a genre involves the entanglement of the form, content and structure of the communicative acts with the purpose and the functionalities of the Twitter platform (Bergquist *et al.*, 2008). In ANT terms, a genre emerges through the alignment of these diverse actants (form, content, structure, purpose and function) and the ongoing enrolment of other actants to align their communicative practices

with this genre.

Styles may be characterised as ways in which language is used or as linguistic “ways of being” (Fairclough 2003, p26). Style is often determined by its in-use context (van Dijk, 1998) such as the different styles employed between an educational lecture and a corporate training event. So style includes the use of specific words and structures by, for example, particular professions (Bax, 2011). Particular styles may be associated with particular genres, although the relationship between the two is not stable as genres can be subverted. Hence, distinguishing between style and genre is not necessarily straightforward. Bax (2011, p.59) gives the example of text messaging as a text form that lacks clear structure but can still be usefully understood and analysed as a genre.

### Discourses

Discourses refer to semiotic assemblages that co-constitute of and with social worlds and so are enmeshed with issues of social practice, materiality, power, society and culture (Rogers, 2012). Thus Discourses are more than Fairclough’s (2003) concept of discourse as representative of aspects of the social world. As Hultman and Taguchi (2010, p.529) state: “Multiple forces are at work in the construction of the world where discourse is only one such force”.

Moreover, Fairclough’s concern with the treatment of difference in discourse mirrors Law’s (2004) framing of method assemblages as addressing “non-coherent multiplicities” (p.98) and the enactment of presence and of ‘otherness’. Van Leeuwen’s (2008) semantic inventory of the treatment of actors in a discourse is useful here in terms of identifying the range of discursive practices to include, promote, other, suppress, objectify, assimilate or exclude such actors. Therefore, the examination of orders of discourse



cannot be separated from examination of the circulation of relations of power.

A discourse will be generated across multiple genres and styles: a discourse on the knowledge economy will traverse across online discussion fora, formal reports and presentations, advertising, product design, policy debates and policies, professional standards and qualification frameworks, multimedia, ideas of professionalism, material and technological designs and so on. In the case of the chat events, the dominant discourses that were identified in my analysis were translated in various different styles of communicative action as I discuss in the later chapters of this thesis. These discourses produce alternative ways of differentiating between those subjectivities that are included and those that are excluded from the professional communities of these Twitter chat events (Beighton, 2013). The construction and maintenance of the boundaries of inclusion and exclusion from assemblages are enactment of power (Jones, Woodward and Marston, 2007).

Hence, discourse, genre and style can also be examined as multi-modal social practices (Rogers, 2012). Here we can see L&D professionals are presented as being challenged by the pace of change, the emergence of new technologies and the increased recognition of the weaknesses of orthodox practice. This discourse of relevance and deficit can be seen as a stable 'refrain' (DeLanda, 2006) of the professional practices that was consistently mobilised over the duration of the sampled discussion events. Hence, the dominant discourses that emerged from the analysis of the chat events and discussed in Chapter 2, both mirror and contribute to the wider dominant discourses of the professional domain, of professionalism and professionals, of advanced capitalist economies and of digitally networked societies. So the interactions of the dominant discourses generate relations of power that make some HRD

practices legitimate and others illegitimate within the assemblages of the Twitter chat events.

## A mess of research?

*If this is an awful mess ... then would something less messy make a mess of describing it? (Law, 2004, p.1)*

This methods chapter was purposively written to present a clear and ordered account of the final methods assemblage used in my research. In doing so, this chapter attempts to present a simplification of the realities of working in that methods assemblage. The methods assemblage presented in this chapter emerged over an extended period of time involving many cycles of data analysis using different research methods and drawing on different theoretical perspectives. The onto-epistemological stance of socio-material assemblage theory produced a number of challenges for me as a researcher within that assemblage. Not least was that any research that has this stance as its starting point is constantly working against the trajectories of ‘traditional’ research based on an espoused possibility of a truth that is ‘out there’ where the researcher is positioned as the independent observer of reality. Jackson (2013a, p.742) presents how such a research reality presents itself in terms of a humanist essentialism that:

*...[assumes] that people (authentic, stable subjects of research) who speak (from a conscious centre) give us (the researchers, also authentic) rational, coherent truths that serve as foundations (data) for data analysis and interpretation.*

Yet in my research I attempt to intentionally explore entanglements of material and data to make sense of the chat events in ways that acknowledge and embrace of messiness of socio-material realities were in constant tension

with research methods that require simplification and data reduction. Any process of data coding involves reductionism and essentialism (Jackson, 2013a) yet some form of categorisation and of pattern seeking and labelling is inevitable no matter how non-reductionist the approach used (as discussed in terms of ‘credibility’ later in this chapter). So my research approach aligns with generative research as described by Markham and Lindgren (2012, p. 3) thus:

*By generative, we include the processes of generating data, generating organizational strategies for one's data, generating multiple analytic coding schemes or categories, and generating links between levels such as local/ global, relational/ structural and so forth.*

As noted in Chapter 2, my experience was similar to other researchers in terms of ‘finding’ socio-materialism from different theoretical starting points (Mitev, 2009; Sørensen, 2009). As I became more immersed in generating and analysing my data, I experimented with a range of research methods a number of which were eventually set aside. For example, using conversation analysis was useful in terms of familiarising myself with how ‘speech’ was accomplished on Twitter. Yet this form of analysis was eventually rejected given its claims of a neutral analysis of data seeking to represent what the participants appear to be stating or claim to be stating. Rather, my interest in understanding the structures of the discussions and the effects these have on the assembling of the Twitter chat events drew me towards Critical Discourse Analysis and how orders of discourse act to regulate the assemblage.

More pragmatically, many aspects of statistical analysis undertaken generated few findings of interest and were not included in the thesis. Experiments with different schema of content analysis orientated to the identification of learning (Gunawardena, Lowe and Anderson, 1997; Rourke

*et al.*, 2001; LaPointe and Gunawardena, 2004) were also unproductive in terms of the emerging core research questions of my study. Also, the application of these schema to Twitter content was problematic in terms of the consistent coding of individual tweets. As I note earlier in this chapter, I eventually found that in the application of CDA my 'unit of analysis' itself changed between individual tweets and sequences of tweets. Orientating the content analysis towards understanding the patterns of interactions came as a response to the challenges of identifying patterns of interactions in the statistical and content analysis. As previously discussed, the interaction exchange scheme of Fahy *et al* (2000) was difficult to apply to the Twitter chat events given its founding on discourse structures associated with more formal learning interactions. Hence I eventually settled on Belnap and Withers' (2008) content analysis with its orientation towards less formal learning interactions. While the application of the scheme was not straightforward in terms of reliability, this form of analysis was critical in terms of identifying and understanding the key patterns of the interactions in the events.

While I made conscious efforts to avoid reductionism through a 'networking sensibility' employing multiple methods, ultimately, simplification of reductionism is inevitable in finishing research. My thesis assemblage selected particular components of the research material for collection, analysis and amplification in writing up my research. My thesis tells some stories about the chat events and while these are multiple and not necessarily coherent stories they are also not all the stories of the events and never could be.

Yet, in acknowledging the privileging the amplification of particular realities over others, I had to engage in constant processes of critical sense-making

and reflective reframing of my data generation to ensure that I was presenting the multiple realities in the data and not simply seeking to reinforce early findings of interest. Thus I would seek out alternative interpretations of my analysis both by using different methods to analysis the same 'critical incident' of interest but also to construct alternative narrative of interpretation of those incidents and seek alternative patterns of effects across the chat events. A particular challenge is in implementing the intended symmetry of analysis of the events in terms of both the symmetry of the social and material but also in the symmetry of issues of concern and interest that was generated with the data. As an example in terms of the latter, I was careful to acknowledge the symmetry between the seemingly trivial phatic communications associated with the 'water-cooler' effect of the chat events and the more substantive tweets, links and blog posts, disputes, exclusions and disciplining evident in the chat data. There is also the need for care in accounting for the material technologies and texts as agentic in this research and to avoid simply following prominent human participants. For example, in identifying extended sequences of tweets, the challenge is in not treating that sequence as a singular 'body of text' and then excluding tweets falling outside that sequence. Rather, the challenge is in shifting the narratives of analysis from that specific sequence to, for example, the effects of: the overall Twitter timeline of the event; the technical functions of Twitter; and user-mentions, retweets, links, images and hashtags on the translation of the tweets and the potential generation of an ambient affiliation (Zappavigna, 2011) in the chat events. Hence, the methods assemblage generated for this thesis involved both a critical reflexivity of the researcher and ongoing processes of reworking of the material of analysis with the risks of time constraints, energy and cognitive capacities of the researcher simply suppressing aspects of the analysis of the chat events.

The overall experience of attempting to use these different methods was an important component of my methods assemblage. The effect of the immersion of the data the diversity of methods created was very valuable in the reflexive operationalisation of CDA as a research approach.

## Generating 'credible' research

The non-representative intentions of my research raises questions about research quality. The emphasis in my research on non-reductionism, 'sensibilities', temporary emergences, fluidity and change, and on the co-constitution of research-assemblages, problematises traditional notions of research quality founded on ideas of validity and reliability. Such notions of research quality are founded on the premise of there being a single reality, what Law (2003, p. 6) calls a commitment to a "singularity", that has long been refuted in interpretive and constructionist research (Bryman, 2008; Eriksson and Kovalainen, 2008). Rather, interpretive research has tended to assess the rigor of research through the lens of credibility or trustworthiness as evaluated in terms of the use of theory, the research design, methods of data creation and processes of analysis (Anderson, 2017). Anderson highlights that this interpretation of credibility fails to account for the effects of the researchers' motivation and purposes or for the effects of the research outcomes (2017, p.126). Rather, she argues for credibility as an outcome of firstly, the transparency in how data was generated and interpreted and to researcher reflexivity; and secondly, that the research presentation has an internal coherence and "hangs together" (2017, p.127).

However, these criteria are problematic as they are predicated on the researcher and the research being distinct from the situated assemblage that

is being explored or discovered. Furthermore, the criteria look for coherence while the socio-material assemblage conceptual frame of this research seeks to amplify the incoherent multiplicities of any phenomena. I treat the Twitter chat events as multiple realities of Twitter, HRD, the knowledge economy, networked society, technological determinism and community temporarily brought together. My ontological position (see Chapter 2) is concerned with processes of assembly multiple realities and the explicit amplification of some realities and suppression of others (Law, 2004). In addressing this multiplicity I, in turn, adopted multiple research methods as a 'methods grid' (Nespor, 1994) .

Based on the conceptual framework of my study, and on Markham and Lindgren's (2012) network sensibility, I was drawn to the notion of 'crystallisation' (Ellingson, 2009) in achieving credible research. Crystallisation highlights the generation of multiplicities through the entangled enactments of research processes of data collection and analysis through the research presentation (Stewart, Gapp and Harwood, 2017). Stewart, Gapp and Harwood (2017) describe crystallisation as generating credibility in research through building chains of evidence based on comparisons across a methods grid. The credibility of research is produced through the transparent and 'thick', reflexive description of the generation of the research assemblage attuned to research as "a complex journey of enriched discovery" (Stewart, Gapp and Harwood, 2017, p.1).

Following Law (2004, p.152), in writing this thesis I sought to privilege the processes of understanding rather than the 'product' of a research practice in terms of generalisable truth claims. So my approach to the research sought to achieve the immersion in the data and research process to generate crystallisation. The focus on the visibility of the research process highlights

that 'cutting the assemblage cake' can be achieved in different ways but also that many other ways of 'cutting the cake' may in turn produce many different 'realities'. Furthermore, the reflexive researcher is aware that they are co-constitutive in particular networks as research-assemblages (Watson, 2011). Fox and Alldred (2015, p.411) state that: "Pulling apart a research-assemblage can specify and evaluate precisely what aggregations and territorialisations a research-assemblage has wrought as it has translated an event into research 'knowledge'".

## Ethical considerations

Researching the Twitter discussion event can pose a number of related ethical issues that need to be addressed. These are captured in the AoIR policy, *Ethical Decision-Making and Internet Research* that states (AoIR, 2012, p.7): "Social, academic, or regulatory delineations of public and private as a clearly recognizable binary no longer holds in everyday practice".

The Twitter discussion events are public events open to anyone with a Twitter account and awareness that the event is occurring. However, the communities of users that participate in these events can be said to rely on aspects of mutual trust and respect that can be undermined by a 'lurking' researcher (Eysenbach and Till, 2001). To address the issue of community trust and mutual respect, as the researcher, I avoided interventions or lurking in live events and used archived transcripts collected using Tweet Archivist and that may be regarded as "public domain" data (Androutsopoulos, 2008).

The discussion events take place in an open and public 'spaces' which pragmatically problematises the notion of the informed consent of



participants in the research. Eysenbach and Till (2001) argue that requesting the consent of all participating individuals would be practically impossible in an open event such as the Twitter discussion events. Rather than contact all the event participants, I contacted the event organisers to inform them of the research and to provide an opportunity to raise objections or asked questions (AoIR, 2012). While the organisers cannot be said to speak on behalf of the event 'community' they may be understood as being protective of that community as well as being effective conduits to any discussions with community members. Only in one case was any response received which was positive regarding the research and included a discussion of the specific research methods I was to use in the context of an EdD in Adult Learning recently completed by one of the event organisers.

Finally, given this pragmatic approach to informed consent and the imperatives to avoid risks to human participants, including their privacy, a number of actions were taken to avoid participants being identifiable (Neuhaus and Webmoor, 2012). Participant Twitter names have been changed although their essential structure and capitalisations have been retained as well as keeping any gendered markers or markers indicating a corporate Twitter account. So 'TrainingPete' is an anonymised Twitter name of a male participant who also indicated a clear domain of professional practice in that Twitter name. It remains possible that an altered name is identical to a name of one of currently 320 million active Twitter users worldwide or a future user. User profiles and location data were also analysed although this analysis has been presented in such a way that the 'scale' of presentation results in anonymity (Neuhaus and Webmoor, 2012) by data aggregation or displaying location data in a single global visualisation that is designed to show little more than continental locations. Additionally, quotes from tweets, but not from online articles and other material, have been

modified so that their authorship is less easily traced through search engines (Markham, 2012). I undertook analysis using the original tweets but redacted selected quotes for inclusion in the thesis taking care to retain the meaning of the quotes. However, it is acknowledged that some quotations may remain traceable.

As Hine suggests (Hine, 2015), ethical research practices cannot be set in their entirety prior to engagement in the research field or site but rather emerge through reflexive and sensitive engagement in the collection, sorting and analysing of the research data.

The repertoire of methods of this study enabled the focus of analysis to shift between the whole assemblage of the research sites and the different instances of interactions in individual chat events. A key component of this, and subsequent, chapters is an emphasis on the transparency of the processes of the research analysis alongside the product or findings of the research. The transparency of how I went about 'cutting the assemblage cake' is important in understanding and reflecting on the components and effects of the assemblages that are highlighted and examined in this research.



# Chapter 5: Structure and Characteristics of the Twitter Chat Events

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## Introduction

The purpose of this chapter is to provide an initial mapping of patterns of activities and interactions in the Twitter chat events. Hence the chapter is concerned with identifying recurring characteristics of the events. I summarise the outputs of the descriptive statistics, social network analysis (SNA) and content analysis as outlined in Chapter 4. As discussed in that chapter, these forms of analysis are important components of the grid (Nespor, 1994) or repertoire of research methods for making sense of the chat events. So, to engage in ‘making sense of the data’, this chapter identifies and analyses the key patterns of participation and structures of the Twitter chat events. What is presented here is the initial, largely quantitative, analysis of the events that will help to identify key ‘points of entry’ to the further Critical Discourse Analysis of the data as presented in chapters 6, 7 and 8.

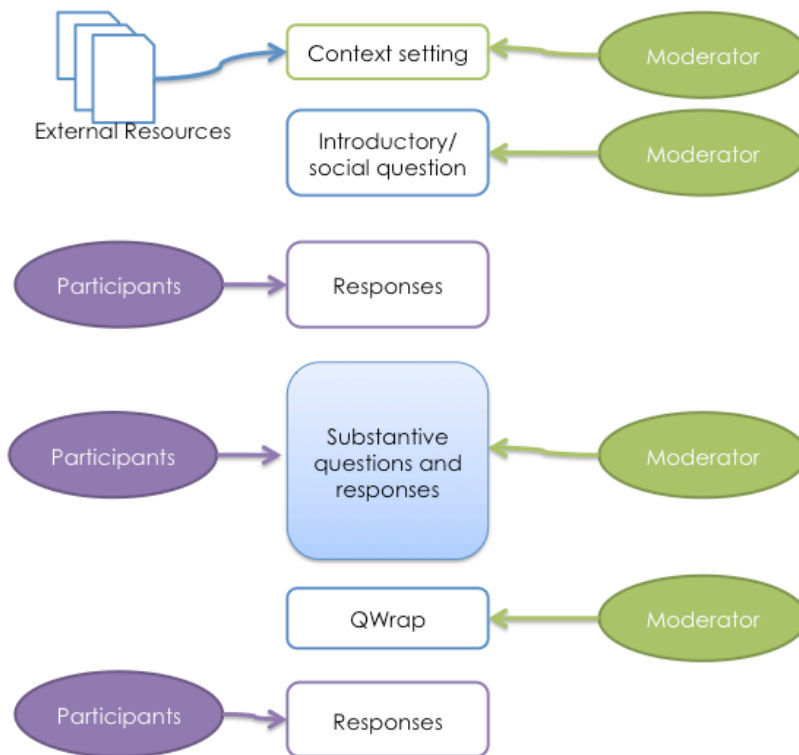
These initial multiple mappings of the chat events open up possibilities for more complex analysis of the research data by destabilising existing understandings of these events while also providing “a systematic trace of one’s movement through various analytical categories and interpretations” (Markham and Lindgren, 2012, p.11). The analysis presented in this chapter explores the processes involved in assembling the chat events on Twitter. In particular, the grid of research methods investigates how different social and material aspects of the chat events create structure and coherence in and

between the events. I argue that this discursive coherence and structure is an important component in creating the normative expectations of the professional domain of HRD. My analysis highlights the 'busyness' of the events in terms of the volume of tweets and the pace of the events as a whole. Drawing on discussions in Chapter 2, the descriptive analysis of the events indicates how the Twitter chat events are performative enactments of the pace and acceleration associated with the new capitalism discourses of the knowledge economy and with an idealised HRD.

The key organising mechanism of these two Twitter discussion event series is the use of specified hashtags. In this case, the hashtags are used as metadata (Jones, 2013) to succinctly present the specific tweet as being a contribution to the discussion event and/ or topic. So the hashtag function allows users to make transparently relate a tweet to a topic (Procter, Vis and Voss, 2013) or event.

The structure of the events is broadly similar to the research process of a Tweetstorm: "an online, open brainstorm-like session via Twitter" (Sie, Bitter-Rijkema and Sloep, 2009, p.60). A Tweetstorm was described as a six stage process involving: (i) the context established by, for example, a topic briefing; (ii) questions are presented on Twitter by the event moderator organised using the specified event hashtag; (iii) answers to the questions are given as tweets by participants; (iv) these tweets are aggregated, for example, using Tweet Archivist; (v) the aggregated tweets are analysed into categories and (vi) the categories are then analysed. The outputs from a Tweetstorm are a series of core statements drawn from the knowledge of the participating experts. As such, a Tweetstorm has similarities to the processes of Delphi studies (Nworie, 2011) or collaborative concept mapping (Simone, Schmid and McEwen, 2001).

Based on the notion of the Tweetstorm, the chat events' structure can be visualised as follows:



**Figure 7: A general structure of Twitter chat events**

Adapted from (Sie *et al.*, 2013, p.62).

# Overview of the Twitter events

The sample of events included in the study took place between 5 September 2013 and 19 December 2013. Within this timeframe there were seven events in the Chat A series and 15 in the Chat B series. Both chat events were cancelled on the 28 November.

I commenced my analysis with a broad overview of the chat events in each series with the simple process of capturing the chat event topics and the numbers of tweets posted in the official duration of each event (Table 2).

Chat A			Chat B		
Date	Theme	Nos tweets	Date	Theme	Nos tweets
05/09/	Learning and motivation	587	05/09/	Reverse psychology	346
19/09/	Design Thinking and learning design	604	12/09/	Learning, anxiety and intention	478
03/10/	Surveys	487	19/09/	Learning from travel	381
17/10/	Big Data	730	26/09/	Learning communities	638
31/10/	'Scary' L&D practices	467	03/10/	Enabling perseverance	420
14/11/	Workplace Happiness	647	10/10/	Vicarious learning	530
28/11/	Event cancelled		17/10/	Cognitive resources	448
12/12/	Technology and learning	694	24/10/	Learning from others' work	768
			31/10/	Fear and learning	686
			07/11/	Social Media for learning	564
			14/11/	Individual and organizational habits	542
			21/11/	Organizational Culture	733
			28/11/	Event cancelled	
			05/12/	Learning from the back channel	367
			12/12/	Empathy, creativity and learning	441
			19/12/	Holiday Hour	505
		<b>4217</b>			<b>7847</b>
					<b>12061</b>

Table 2: The sample of chat events

The use of a time-bound sample frame accounts for the greater number of Chat B events included here. This increased number of Chat B events sampled may account for some of the variations in findings between the two event series.

The event themes show the specific interest of both event communities in the practices of human resource development. For example, exchanges of experiences in practice is suggested in both Chat A events on “inspiring learners” (05/09) and on “the use of technology in learning and development functions” (12/12), and in the Chat B events on learning from others’ work (24/10) and on learning from travel (19/09). Other events suggest a focus on exploring the implications of a topic for the development of professional practice, examples of these include the Chat A events on “big data” (17/10), and “workplace happiness” (14/11) and the Chat B events on “reverse psychology” (05/09), “anxiety and intention in learning” (12/09) and on the “implications of individual and organisational habits” (14/11). Expanding knowledge and learning appears to be the purpose of the Chat A sessions on “design thinking” (19/09) and on surveys (03/10) as well as the Chat B events on “social media in learning” (07/11). Other events appear to have a more social and community-building purpose such as the Chat A event on Halloween on “‘scary’ HRD practices” or the holiday focused Chat B event (19/12).

The structure of the Twitter chat events does mean that each event topic evolves according to the participant contributions and so the discussions in each event may evolve very differently from the expectations from the event title. It is the informal and user-led characteristics of the Twitter chat events that identifies them as suitable sites for exploring how: (i) practitioners report on, define and discuss their own professional field; and (ii) how the selected



technologies are entangled practices of the chat events and the shaping of the discursive repertoires that emerge in the events. It is these concerns that underpin the research questions of my study:

1. how is the professional domain of HRD defined and redefined in the events;
2. in what ways do the chat events collectively enact the concept of online community;
3. how do the events constitute the performance of professional learning and knowledge sharing; and
4. how do the entanglements of materials, technologies, text and people generate particular structures and patterns of interactions in the events?

Chat A is organised by seven individuals working in the HRD field, either as self-employed learning designers and consultants or with small learning technology companies. The chat event has been running since 2012. The organisers are six women and one man and are based in the USA and UK. Three of the group state in their profiles that they are members of the Learning and Performance Institute (LPI)<sup>12</sup>. While the website for the chat events includes a section for submitting topic requests this is not well used so how topics are chosen for each event is not transparent. Furthermore, as noted elsewhere, the chat event questions are posted from an anonymous Twitter account and the organisers participate as any other Twitter user. While some of the organising team are also some of the most active contributors, other participants in the events are also at least as active and, at times, more so.

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<sup>12</sup> <https://www.thelpi.org/>

Chat B has been running since 2009 as one of the earliest regular Twitter chat events. The events are organised by a team of six people, three men and three women all based in the USA except for one person located in Australia.

Again, the group members are predominately self-employed consultants but rather than describing themselves in the language of learning and development, they describe themselves as public-speakers, producers, authors, performance strategists as well as e-learning specialists. So this group overtly present themselves as multi-disciplinary or trans-disciplinary experts and rooted in the performance-orientated discourses within the domain of HRD. Professional affiliations stated in participants' profiles include the eLearning Guild<sup>13</sup> and the Association for Talent Development<sup>14</sup>. Similar to Chat A, while there is a topic suggestions section on the event website, this has not been active since 2011 and how topics are selected is, again, unclear.

The Chat A events take place at 4pm GMT/ BST<sup>15</sup> while the Chat B events take place at 8.30pm Eastern Time/ 5.30pm Pacific Time, reflecting the geographical orientation of the majority of organisers of the events. In their study of MOOC learners, Veletsianos, Collier and Schneider (2015) identified how time for learning was found in the spaces around work and non-work activities, for example, after work, on commutes, when the children were asleep and so forth. This aspect of learning is reflected in the timing of the Chat B events, however, Chat A is scheduled during worktime in the UK. This may indicate different attitudes to the relationship between learning and

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<sup>13</sup> <https://www.elearningguild.com/>

<sup>14</sup> <https://www.td.org/>

<sup>15</sup> Greenwich Mean Time/ British Summer Time

work, where the Chat A community see learning as part of work and should be conducted in work time while Chat B perceive learning to be more of a responsibility of the individual and that professional learning is to be pursued outside normal work time: hence learning is not always seen as a legitimate work practice. However, as I explore in Chapter 6, across both event communities there appears to be a general expectation that learning is increasingly the responsibility of the individual: often as a form of employee capital ensuring continued employability.

Reflecting the multi-disciplinary discourse of the organising group, the Chat B events have a greater emphasis on exploring the implications of topics for the development of HRD practice. So the Chat B event topics appear to be more ambiguous and so perhaps more open to being steered by the development of the discourse from the participants.

I next analysed some basic activity metrics to identify general similarities and differences between the two chat event series. Chat B as a weekly event, includes more events over the sample period which accounts for the higher number of tweets and, possibly, the higher number of unique participants as indicated in Table 3. This may raise questions about representativeness and the sample for the study. However, this study is not making claims of representativeness or of the generalisability of findings from the data, but rather this study explores how these event communities function, framed in terms of my specific research questions.

	Chat A	Chat B
Total number of tweets within the sample period	4217	7847
Unique participants	105	305
Tweets per participant (mean average; rounded)	40	26
Total retweets	1271 (30.1%)	2262 (41%)
Retweets per participant (mean average; rounded)	12	7
Top 10 most active users' share of all tweets	2056 (48.8%)	3119 (39.7%)
Top 20 most active users' share of all tweets	3102 (73.6%)	4494 (57.3%)
Three most frequent keywords	Learning; Learn; People	Learning; Learned; Culture
Participants in both chat event communities	32	

**Table 3: General statistics**

(adapted from Treeck and Ebner, 2014, p.416).

The average tweets per participant indicates that the Chat A participants, in general, are more committed to contributing to the event hashtag. But the proportion of tweets coming from the 10 or the 20 most prolific participants suggests that Chat A may also be more dependent on these more active tweeters although Chat B's much larger number of participants makes comparison here difficult to undertake. The activity levels in the discussion events are explored later in this chapter. Overall, the 40 most prolific tweeters from both event communities account for 63% of the total number of tweets. These are clearly only the broadest user statistics from the event and the following sections of the chapter will further explore the more detailed activity, visibility statistics (Bruns and Stieglitz, 2013) and network analysis (Scott, 2013) of the two communities as well as of specific individual chat events.

Finally, the participation of 32 individuals in both event communities indicates that the two communities can be understood as a single network

made up of two sub-groups centred around the specific events. The 32 common members act as bridges between the two sub-groups (see Figure 24, page 231 for further discussion on this point). Therefore, we might expect to find some evidence of the two event communities presenting as a single discursive community through information exchange and common discursive or communicative structures. Ideational networks between the two communities are also suggested by the similarity of the most frequent keywords found.

## Analysis of the event activities

The next stage of analysis draws on Bruns and Stieglitz's (2013, 2014) discussion of key metrics for analysing Twitter data based on participant activity and participant visibility. The data presented here expands on the participant-centric metrics to include event focused metrics as discussed in Chapter 4. Activity metrics refers to the number of tweets contributed by each participant from which may be inferred the participant's commitment to, in this case, the specific discussion event.

Visibility metrics are concerned with inferring how other participants view a particular participant in the discussion event. These may include, for example, how many times a participant is retweeted or how many replies they receive (Bruns and Stieglitz 2013, p.96).

## Activity metrics

In terms of activity metrics, the number of unique individuals participating in the discussion events over the period of 5 September to 19 December 2013 was:

	Participants per event			Tweets per event		
	Mean	Median	Range	Mean	Median	Range
<b>Chat A</b>	30	31	12	602.43	604	263
<b>Chat B</b>	40.93	39	32	523	505	422

**Table 4: Summary statistics of the chat events**

This summary data (Table 4) indicates that Chat A attracts fewer participants per event but that the number of participants is relatively stable over the period. Chat B, in contrast, can see very different numbers of participants at any one event as indicated by the range of participants of 32 compared to Chat A's range of 12. Chat B tends to attract more participants to the greater number of events but this may be as an outcome of the higher number of individual events captured within the sample frame. While the higher range of the number of participants at each Chat B event suggests greater instability in the 'community' of participants, the numbers do not tell us whether the participants attending the events were actually the same people or not.

Despite the higher rates of participation, Chat B tends to have a smaller number of tweets produced per event. Also, following the broader range of participants at the different events, the range of tweets posted per event is also much higher for Chat B than for Chat A. This infers that those participants tend to be more actively and consistently committed to the Chat A events than in the Chat B events. In the Chat B events, there is a wider range of participants contributing to the events but that participants tend to

participate in fewer events each. This pattern of activity may indicate that Chat A is a more closely tied community with a stronger and, potentially, a more settled sense of community and professional identity. Chat B appears to have a more open and also unstable collective identity related to a looser sense of community and professional identity. However, these patterns may also be explained through the adoption of different communicative strategies within the different chat event communities. Different communicative strategies may be indicated by, for example the balance of original tweets with retweets, replies and mentions (Bruns and Stieglitz 2014, p.71), and this will be explored later in this chapter. However, it should be acknowledged that these aggregated metrics may hide interesting aspects of individual events.

I next look at specific metrics for individual chat events. The summary of the mean, median and standard deviation in tweets per participant (Table 5) indicates events where potentially more interesting patterns of participation and interaction may be found.

Chat A				Chat B			
Event date	Mean Nos tweets	Median Nos tweets	Standard Deviation	Event date	Mean Nos tweets	Median Nos tweets	Standard Deviation
05/09	18.38	12	21.00	05/09	12.81	7	14.32
19/09	20.82	15	21.91	12/09	9.56	5.5	10.64
03/10	19.48	13	20.29	19/09	11.9	10	9.88
17/10	23.55	16	21.03	26/09	16.79	11	16.71
31/10	19.46	15.5	12.89	03/10	13.55	13	12.98
14/11	19.61	10	26.54	10/10	13.59	10	14.76
28/11	Event cancelled			17/10	13.58	10	13.26
12/12	19.23	12.5	23.02	24/10	14.49	11	12.86
				31/10	12.94	7	13.49
				07/11	13.76	12	12.39
				14/11	11.06	6	11.89
				21/11	12.42	6	15.13
				28/11	Event cancelled		
				05/12	12.66	11	12.48
				12/12	11.31	5	14.07
				19/12	12.63	8.5	12.85

**Table 5: Average tweets per participant by each event**

My analysis focuses on broad areas of divergence and similarities between events. For example, the Chat A event on 31/10 that has a lower standard deviation indicating a higher proportion of participants were making a substantial number of posts compared to the other events in that series. In contrast, the higher standard deviations in the other events suggests that these events tended to have small groups posting the majority of tweets. The event of 31/10 had a more informal topic that itself may have encouraged participants to be more active in the event including through higher rates of ‘social’ comments as well as attract more regular community members who tended to post more tweets anyway.

The Chat A event of 14/11 on Workplace Happiness, shows a higher standard deviation and a larger difference between the mean and median numbers of tweets indicating that a small number of participants contributed a greater



proportion of the overall tweets (thus raising the mean in comparison to the median measure of average).

Similarly, in the case of the Chat B series, the events of 14/11; 21/11; and 12/12 have a wide difference between the mean and median number of tweets that contrast with the closeness of the mean and median measures for the events of 19/09; 03/10; and 05/12. Furthermore, the highest and lowest standard deviations (26/09 and 19/09 respectively) may also be interesting entry points into the data as this indicates the events with the most and least variability of activity by participants to the event discussion respectively.

Table 5 indicates that the Chat A events have a greater proportion of committed participants contributing a higher number of tweets each than in the case of Chat B. But this table also shows that there is a high variability in the extent of participant contribution to each event in the Chat A series compared to those of Chat B.

This data indicates some specific events of interest for further investigation in terms of event topics and of the possible communicative strategies demonstrated in the event and how these may relate to the community and identity forming discursive actions in the events.

As I progressed further using the descriptive statistics, the chat event assemblages appeared both increasingly disordered and with emerging patterns of difference between the two event series. Further analysis across both discussion event communities identifies a common pattern of participation, where activity as indicated by the number of tweets is concentrated in a smaller number of participants with a 'long tail' of participants contributing only a few tweets each to the discussion events. This

is similar to the findings of other studies on Twitter activities (Lotan *et al.*, 2011; Ross, Terras, Warwick, *et al.*, 2011; Bruns and Stieglitz, 2013). Across Twitter as a whole, Heil and Piskorski (2009) found that 90% of tweets came from just 10% of users, and this finding was confirmed by Horan (2013) as well as being replicated in other social media (Nielson, 2006). Similarly, Ford, Veletsianos, and Resta's (2014, p.8) study of one chat event series (#PhDChat) found that of 3,299 participants, the 100 most prolific participants contributed 48% of all tweets. These activity metrics indicate the potential importance of these more prolific participants in shaping the discursive structures and communicative actions (Heracleous, 2006) of the chat events.

The similarity of patterns of activities in the chat events to those found in other research on Twitter indicates the extent to which the assemblages of the chat events are entangled with assemblages of Twitter. This supports DeLanda's (2006) emphasis on assemblages as socio-material elements that gather together in recurrent processes. Despite the commonality of processes, the different Twitter instances, from conference backchannels, to #PhDChat, to other hashtagged communities, generate diverse outcomes in terms of communication, knowledge sharing, identity building and sense-of-community.

As I discuss later in Chapter 7 (pages 250-251), the Chat A events have more participants attending a wider range of individual events compared to the Chat B events. Hence it may be suggested that the Chat B community depends on a smaller proportion of its participants in consistently contributing to the chat events on a regular basis over time. Again, this may suggest that Chat2Learn demonstrates a clearer and more stable sense of community and professional identity than Chat B through a group of active and committed participants. In turn, this suggests that the Chat A events

generate stronger territorialisation and ordering effects of the events. Chat B may attract a wider pool of participants but with a greater dependence on a proportionately smaller sub-group of committed active participants. The wider pool of participants in Chat B may attend specific topics of interest where they may explore emerging areas of HRD practice or where specific learning opportunities could be anticipated. So Chat B may act more to discursively develop specific areas of HRD practice rather than to demonstrate a strong and stable sense of professional or community identity. So it could be anticipated that Chat B displays more exploratory, discursive and conversational communication strategies employing questioning tweets, argumentation and replies while Chat A may demonstrate discursive structure of diffusion involving fewer substantive exchanges and few, if any, indicators of argument or disagreement.

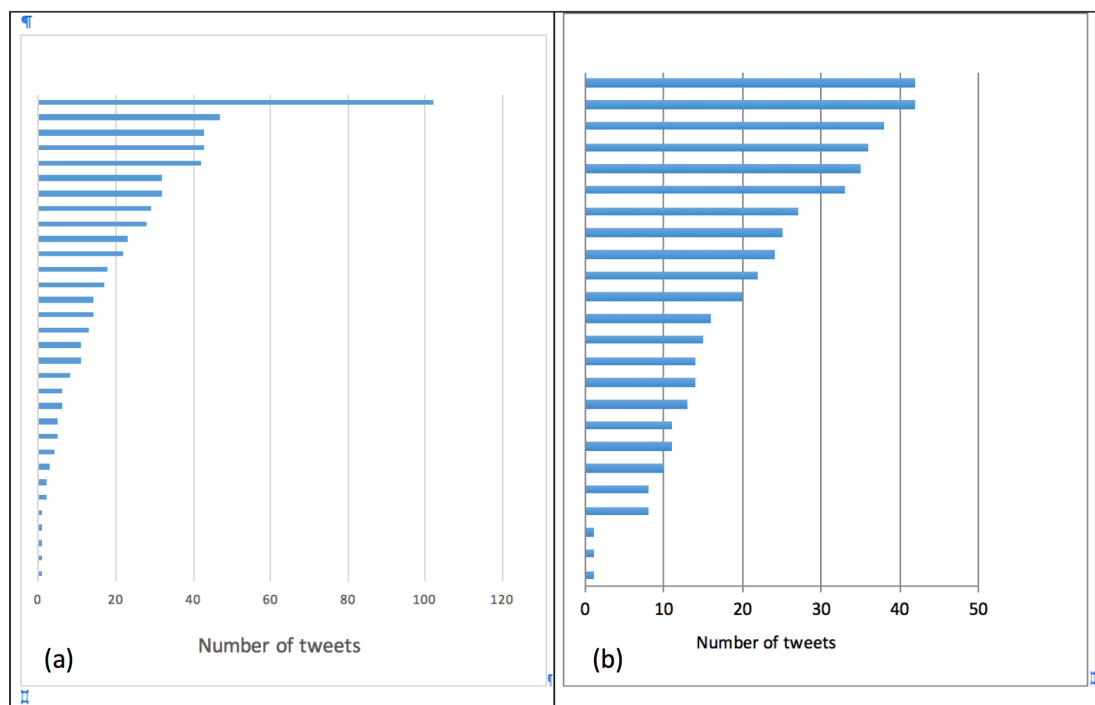
This initial analysis of some basic quantitative data highlighted potential patterns of similarity and differences between the chat event series. However, these patterns or ordering effects from aggregated data also raise questions that require more granular analysis. I then analysed individual events initially looking at patterns of activity.

#### Participants: activity and visibility

Participation levels also vary from event to event although there is a continuation of the common pattern of a small proportion of participants contributing the majority of tweets. As can be seen in the following two charts (Figure 8), there can be some variation in the pattern of activity across individual events.

**Example (a)**

**Example (b)**



**Figure 8: Patterns of participation**

Figure 8 shows patterns of participation from two events from both event series. The two were selected as showing common patterns of participation. The charts show all the participants from each event and the number of tweets each participant posted.

Example (a) shows an extreme case where one individual contributes the most number of tweets by a significant margin. In this case, that particular participant made 102 tweets (17.35% of the total tweets). The next most prolific tweeter made 47 (7.99%). Example B shows a common pattern of a gradual reduction in the number of tweets posted and a minority of participants contributing one or two tweets only. The pattern of tweets in Example (b) is the same as that of Example (a) if the outlier individual who tweeted much more than the other participants is excluded.

Approaching the data through the most active participants may be useful given that for Chat A, over the seven individual events, the ten most active participants accounted for nearly half of all tweets posted during the events and the twenty most active accounted for nearly three quarters of all tweets posted. In the case of Chat B, the ten most active accounted for nearly 40% of all tweets and the twenty most active accounted for 57%. This again confirms the general pattern that the Chat A events had a greater dependence on the more 'committed' participants while the Chat B events demonstrates a wider base of active participants. But it should be emphasised that visibility of activity is not necessarily a measure of influence in the discursive structures within individual events or the event communities and may rather be the outcome of specific communication strategies adopted by individual participants (Bruns and Stieglitz, 2014). I explore further the notions of influence and trust in the chat event communities in Chapter 7 (see the section: 'Influence and trust') in terms of network structures as measured in social network analysis and the Twitter profiles of influential participants. I analyse this with a particular focus on the development and maintenance of particular norms of conduct (Glezakos and Lazakidou, 2012) and reciprocity (Ridings and Gefen, 2004). In Chapter 8, I also explore the role of the visibility of activity and the discursive strategies used in the facilitation of learning.

Using activity levels as an approach to 'slice into' the data, and then using a broader focus on communicative actions and discursive structures (Heracleous, 2006) within and between events, may assist in avoiding a 'Machiavellianism' (Miettinen, 1997, unpaginated) that: "ignores such phenomena as learning, development of expertise, complementarity of resources and know-how in network construction".

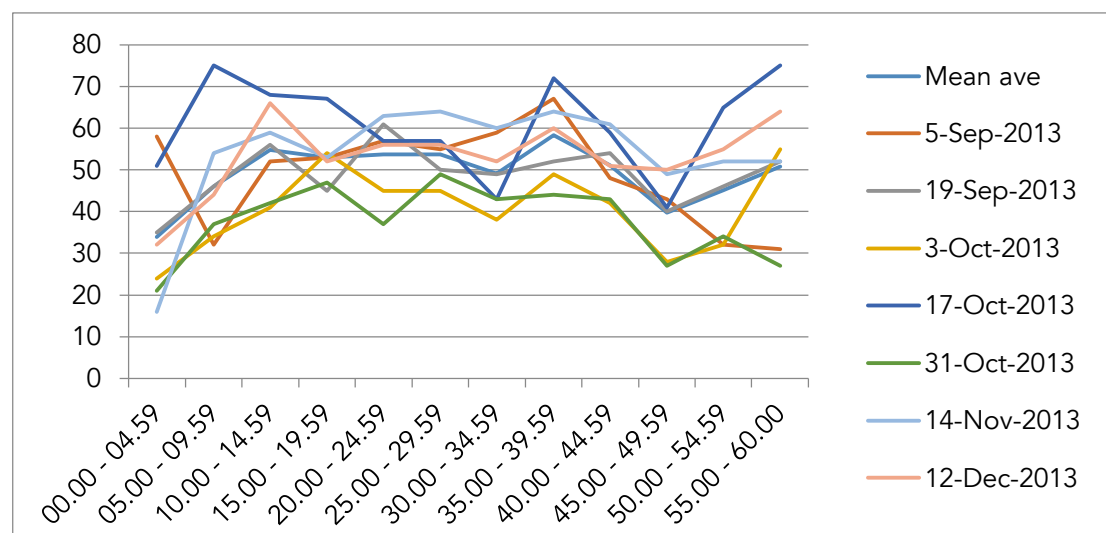
These initial descriptive statistics highlight particular aspects of similarity and differences in the patterns of activities in the chat events. There are two key aspects of this statistical analysis so far: firstly, the recurring events generate the possibilities for other forms of analysis (see Figures 25 and 26, pages 250-251) that are not relevant to, for example, single events such as conferences (Li and Greenhow, 2015) or massive events such as: the London riots (Procter, Vis and Voss, 2013); Japanese tsunami (Markham and Lindgren, 2012); and the more general use of the hashtag function to generate a sense of topic coherence or thematic community outside any specific event (Small, 2011; Jones, 2014; Sloep, 2014). Secondly, I was very conscious that the statistical analysis generates a bias towards fixating on the individual social participant. As discussed in chapters 3 and 4, the privileging of the individual person and of networked individualism is embedded in the notion of a Social Network Service (SNS) such as Twitter and manifested in the Twitter API in terms of the data extracted from Twitter. As Yuan (2012) argues, both Twitter itself and much research on Twitter are enmeshed in centrality of the human user. I am conscious, in the context of this study and the theoretical perspective adopted, of the challenges of shifting the focus of analysis away from the dominant human actor (Miettinen, 1997).

## Temporal analysis

One approach to seeking patterns in the activities of the Twitter chat events may be through a temporal analysis of activity levels (Bruns and Stieglitz 2013, p.99). Here, Bruns and Stieglitz refer to a breakdown of activity data by time, as this is useful for: “examining whether hashtags are used mainly for posting original thoughts, for engagement within the community, or for sharing information”. This type of analysis is made possible as the Twitter API includes a universal time-date for each tweet made and this is captured in Tweet Archivist.

For the temporal metrics I started by simply counting the number of tweets in five minute periods for the duration of each chat event. I selected five minute increments as this duration included a sufficient volume of tweets to identify patterns of posting. Shorter time frames displayed too much variation so patterns were difficult to identify while longer – time frames tended to flatten out any variation across the duration of the events.

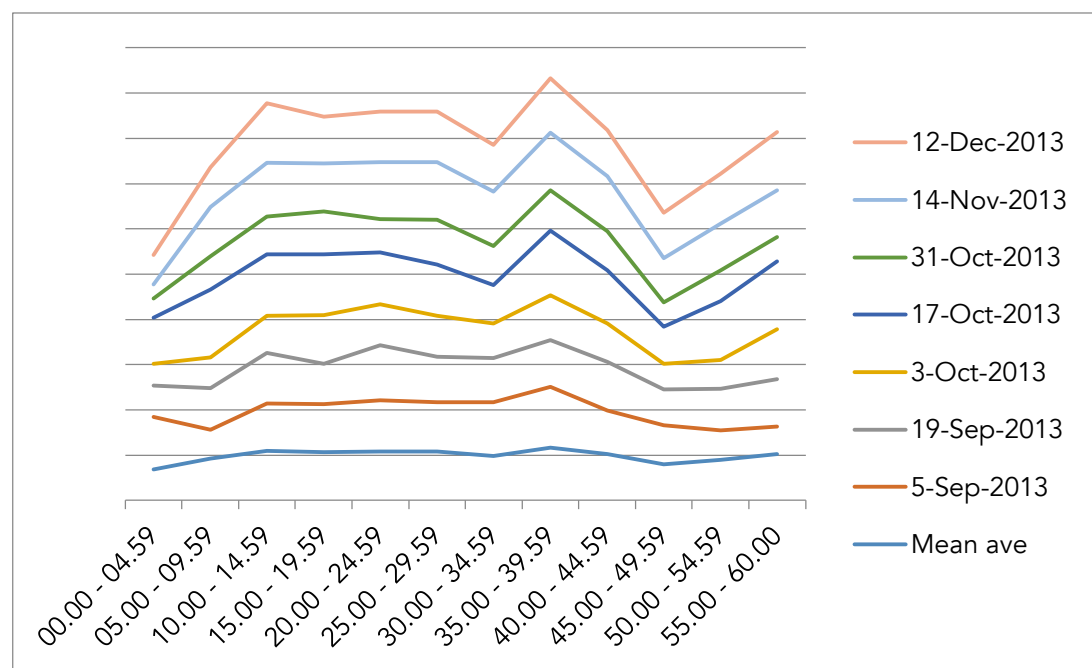
The initial chart configuration I used, Figure 9 below, suggests that there is not a clear common pattern of variation in of the discussion intensity over time in the Chat A discussion events.



**Figure 9: Temporal analysis of Chat A**

However, by using a stacked line chart (created using Microsoft Excel), as in Figure 10 for Chat A and Figure 11 for Chat B below, a clearer visualisation of the activity-levels over time of each of the series events can be seen. The stacked line chart presents similar patterns in these activity levels in each chat event. As might be expected, the stacked line charts show an increase in the rate of tweets at the early stages of the events as participants join the event

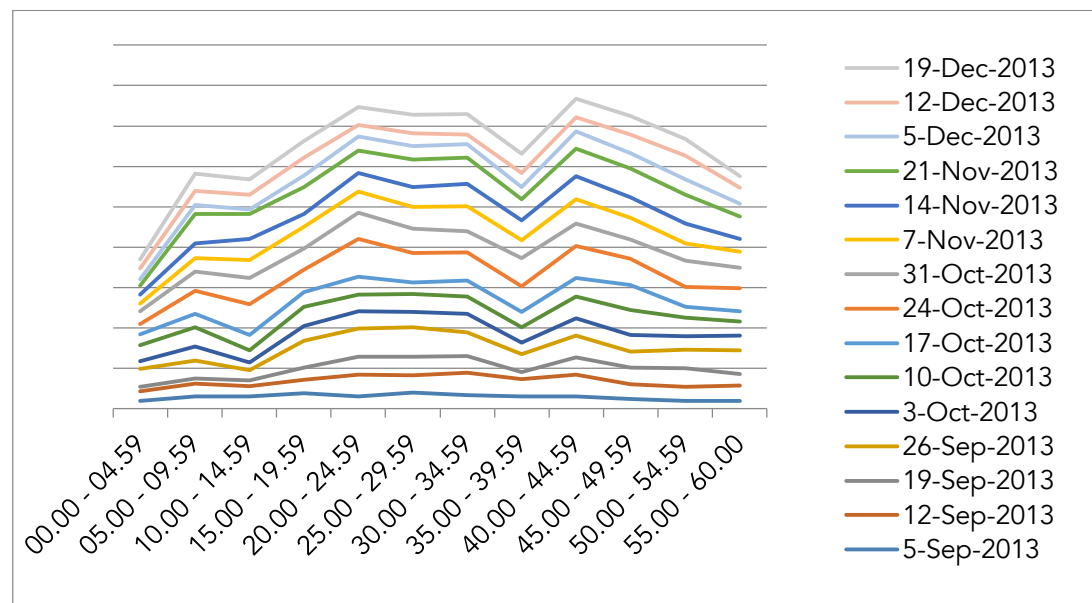
and begin tweeting. In both chat events series, there also appears to be a drop in activity levels about two-thirds to three quarters of the way through the event. In the case of Chat A, this drop is followed an increase in activity as participants respond to the QWrap question: the final question in each chat event that involves tweeting additional information, tweeting social ‘goodbyes’ and participants marking their presence at the events.



**Figure 10: Temporal analysis of Chat A - stacked**

In the case of Chat B, the more extended period of the initial increases in tweets in Chat B may indicate the duration required to gather in the more disparate group of participants than in the case of Chat A. Similarly, the lack of a clear upturn in tweets towards the end of the event, despite the inclusion of the QWrap question, may indicate the lesser commitment to the event of the Chat B participants. As a result, they feel less need to engage in the phatic communications of inculcating a sense-of-community or to mark their presence at the event (Mills and Chandra, 2011; Glezakos and Lazakidou, 2012; Reichart-Smith and Smith, 2012; Boyd and Nowell, 2013).





**Figure 11: Temporal analysis of Chat B - stacked**

This initial temporal analysis suggests that the time-boundedness of the chat events is an important component in the processes of assemblage. The build-up of tweets and retweets towards the peak of activity is a key aspect of enacting the notion of pace in the events. The chat events generate a performative enactment of the dominant discourse that fetishises speed and technological acceleration (Wajcman, 2015). This aspect of the events is discussed further in Chapter 6 where I argue that this discursive fetishisation of speed in relation to HRD practices is materially enacted in the pace and tempo of the Twitter chat events themselves.

This temporal analysis assists in further understanding of the dynamics of the discussions. Through analysis of individual events, I was able to identify how the mobilisation of the retweet function of Twitter was a key factor in driving up the overall pace of activity in each event. Furthermore, the behaviours occurring in an event interacted with the rates of activity over time. So one event, for example, saw a marked increase in the rate of activity that occurred

as participants engaged in knowledge sharing activities: by retweeting or posting links to other resources. Other instances saw more intense periods of activity driven by original tweets giving direction on the design of survey questionnaires. This discursive style is one I labelled as 'instructional talk' and discuss in more detail in chapters 6 and 8.

Furthermore, the temporal analysis indicates processes of developing discursive stances in an original tweet that may then be stabilised or diffused through retweeting. This pattern of original tweets followed by retweeting is also seen in the examples of the events being dominated by knowledge sharing and learning. Low levels of retweeting can indicate discussion events where discourse structures of the community are disputed or in the process of emergence. So temporal analysis may give indications of areas of interest within the discussion events but further discourse analysis is necessary to understand the dynamics of the events.

## Conversation

I next looked at the characteristics of conversations in the chat events. As discussed in Chapter 3, Twitter was not initially designed as a conversational medium although user behaviours have demonstrated its affordances for doing so and these have been inscribed into the platform features (Honeycutt and Herring, 2009; boyd, Golder and Lotan, 2010; Zappavigna, 2011; Bruns, 2012; Gillen and Merchant, 2013). Key conversational features of the Twitter platform can be framed in terms of 'addressivity' and indicated by the 'user mention' function that includes replies and retweets (Honeycutt and Herring, 2009; Purohit *et al.*, 2013). As discussed in Chapter 4, there is no straightforward way of distinguishing between replies, that indicate a direct

conversation between specific users, and user mentions that may or may not indicate that a conversation is taking place.

### Addressivity

The sampled Twitter discussion events analysed here show little evidence of addressivity as a discursive strategy. The use of the “@” symbol other than in retweets was limited:

Chat A				Chat B			
Event date	Tweets	@_replies or @_mentions	Percentage	Event date	Tweets	@_replies or @_mentions	Percentage
05/09	587	83	14.14%	05/09	346	60	17.34%
19/09	604	92	15.23%	12/09	478	11	2.3%
03/10	487	82	16.84%	19/09	381	82	21.52%
17/10	730	152	20.82%	26/09	638	83	13.01%
31/10	467	38	8.14%	03/10	420	55	13.10%
14/11	647	30	4.64%	10/10	530	150	28.30%
28/11	Event cancelled			17/10	448	75	16.74%
12/12	694	84	12.10%	24/10	768	142	18.49%
				31/10	686	123	17.93%
				07/11	564	138	24.47%
				14/11	542	138	25.46%
				21/11	733	135	18.42%
				28/11	Event cancelled		
				05/12	367	70	19.07%
				12/12	441	172	39.00%
				19/12	505	187	37.03%

**Table 6: User mentions**

Table 6 indicates that Chat B had a consistently higher rate of user mentions other than retweets. This suggests that more conversational exchange sequences occurred within the Chat B events (other than the event of 12/09). This may also suggest that the processes of assembling the Chat B events rely more on direct participant-to-participant interactions in developing discussions.

Furthermore, in both chat event series, but especially in Chat A, alternative strategies to addressivity are used to develop discursive coherence.

Addressivity as enacted in these chat events can arguably be defined differently as, for example, person-to-group exchanges or as text object-to-text object.

Alternative strategies of addressivity can be seen where it is the question being addressed not the participant. Addressivity is not then marked by mobilisation of the reply or user mention functions but rather by including question numbers prefixed with either “A” or “Q” followed by the question number of with no prefix at all. The three tweets below all ‘address’ question 1:

*A1) travel broadens the mind by exposure to new ideas, experiences, sights & sounds*

*Q1) Travel is an immersive experience. You can only learn so much from TV and books.*

*1) Travel broadens the mind by taking us out of our familiar haunts and providing immediate reason/need to learn*

So conversations can be seen to be generated through cumulative building up of responses to the provided questions. The conversation of the chat events is generated addressing the text object, the question, rather than the human actor, the Twitter user.

### Retweeting

As noted previously, retweeting is part of the platform functions of Twitter presented in a standard syntax of “RT @\_user\_name TEXT”. Despite this convention, the variation in retweet syntax found by boyd, Golder and Lotan

(2010) can still be seen, although the extent of that variety has reduced (Koutropoulos *et al.*, 2014). Specifically, no examples of 'retweeting @'; 'retweet @'; 'HT @' or 'r @' as noted by boyd, Golder, and Lotan (2010) were found in the retweeting syntaxes adopted in the two discussion event communities. All of these syntaxes have been inscribed into the Twitter platform as RT@\_user names TEXT except for HT@\_user name which indicates that a tweet has been inspired by, or is repeating content from, a specific user (HT standing for 'hat tip'). However, retweeting conventions used in the discussion events included 'RT @' and 'MT@' to denote retweeting where the original tweet has been modified often to fit within the 140 character constraints of Twitter. Also, specific to the Chat B events were examples of the attributed quoting of another participant's tweet using quote marks but not using the conventional markers of a retweet.

Also, as found by Koutropoulos *et al.* (2014), the identification of a retweet as a retweet is not always straightforward. For example:

*Share the link! :) RT @HeddaStaines: I have a whole pinterest board on employee engagement (my word for happiness)*

This tweet may be categorised as a retweet of an original tweet from @HeddaStaines. As Koutropoulos *et al.* (2014, p.17) note, such a tweet may be seen as "a retweet, a reply or both" or the tweet could be categorised as a 'user mention'. However, for the purposes of this study, retweets, modified tweets, attributed quotes and retweets modified to include simple confirmations have all been categorised as retweets.<sup>16</sup>

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<sup>16</sup> Restatements have also been used as a category for classifying tweets where quote marks were used but the author of the original tweet has not been noted or where the author has explicitly stated that they are restating another participant's tweet but not quoting.

Despite the complexities of the retweet, both discussion event communities make substantive use of the function as can be seen in Table 7.

Chat A				Chat B			
Event date	Original tweets	Retweets	Retweet ratio	Event date	Original tweets	Retweets	Retweet ratio
05/09	303	284	0.94	05/09	242	104	0.43
19/09	321	283	0.88	12/09	325	153	0.47
03/10	291	196	0.67	19/09	296	85	0.29
17/10	427	303	0.71	26/09	395	243	0.62
31/10	256	211	0.82	03/10	303	117	0.39
14/11	376	271	0.72	10/10	392	138	0.35
28/11	Event cancelled			17/10	284	164	0.58
12/12	398	296	0.74	24/10	547	221	0.40
				31/10	484	202	0.42
				07/11	388	176	0.45
				14/11	392	150	0.38
				21/11	519	214	0.41
				28/11	Event cancelled		
				05/12	268	99	0.37
				12/12	354	87	0.25
				19/12	396	109	0.28
Overall retweet ratio			0.78	Overall retweet ratio			0.41

Table 7: Retweeting and retweet ratios

In a study of tweet diffusion patterns on Twitter, Fabrega and Paredes (2013) found retweet rates across a sample of the whole Twitter stream of between three and five percent. However, Chat B has a retweet rate closer to those found in Twitter use by MOOC (Massive Open Online Course) participants at around 30% of all tweets (Treeck and Ebner, 2014). Chat A has a much higher retweet ratio suggesting that the Chat A community adopt different discursive strategies in the chats than found in Chat B.

The Chat A events generate a higher retweet rate but still with more original tweets than retweets. However, the event of the 3 October 2013 generated almost half as many retweets again as original tweets. The topic for this

specific event was on the use of surveys in learning and development and involved extensive exchanges of experience and information sharing. As discussed earlier in this chapter, those forms of discourse appear to stimulate a higher rate of retweeting.

There are some common retweeting practices, such as retweeting the original discussion question soon after it has been posted. This retweeting practice acts as a means of establishing conversational floors (Simpson, 2005).

Simpson refers to conversational floors in computer mediated discussion in terms of the cohesion and coherence in the discourse (2005, p. 338). The conversational floor must be both stated and then accepted by other participants (Simpson, 2005, p. 345) so in these chat events the retweeting of the new question occurs until a few clear response tweets have been posted.

Such a strategy may be as “an act of friendship, loyalty or homage” or for self-promotional purposes by seeking association with a more prominent event participant and so enhancing the retweeter’s social and cultural capital (boyd, Golder and Lotan, 2010). But, it may simply be that retweeting with the additional attributions was the most straightforward approach given the presentation of the Twitter stream or multi-column-based presentation of Twitter content and flows as discussed previously,

Retweeting practices in the chat events include the range of strategies and motives identified by boyd, Golder, and Lotan (2010, p.6) to:

- share a tweet to a wider and/ or different audience;
- inform a particular audience; to add additional content to an existing tweet;
- indicate one’s presence in a conversation;
- publicly indicate agreement or validate a viewpoint;

- display friendship or homage;
- acknowledge less popular content of Twitter users;
- gain visibility, for example, by retweeting a prominent participant; and
- save a tweet for future purposes<sup>17</sup>.

The chat events also demonstrate the use of retweeting as a strategy for (re)initiating or repairing discursive sequences where, for example, the flow of the discussion event may have moved on or where the participant has been delayed in reacting to a previous tweet.

The descriptive statistical analysis highlights how the patterns of participation duplicate those found in the wider network-assemblage of Twitter. Such patterns include the majority of tweets coming from a minority of participants, the lack of participant-to-participant conversation and the use of the retweet function and conventions. Analysing the markers of person-to-person addressivity (Honeycutt and Herring, 2009) characterises the event conversations as serial monologues without the directed communication associated with conversations. However, this analysis also surfaced alternative approaches to generating discursive coherence that are specific to the chat event assemblages. Hence, from the assemblage of the chat events has emerged alternative trajectories that shift the performance of the SNS of Twitter away from the assumptions of network-individualism to a more distributed and collective focus during the events.

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<sup>17</sup> This function can also be performed by favouriting the specific tweet. As noted earlier in this thesis, the use of the favourite function is not captured by the Twitter API and so no data on its used is examined in this study.



Given the relational ontology of the method assemblage, I next focused on the structural and relational effects within the events and I turned to Social Network Analysis.

## Social Network Analysis

As discussed in Chapter 4 (see the section: 'Researching Twitter'), Social Network Analysis (SNA) has recently seen a large growth of research activity partly driven by the increased popular use of social network sites (SNS) and by a business and managerial emphasis on 'networking' (Scott 2013). Social networks are constituted by nodes connected through ties or 'edges'. These nodes may be individual people, teams, organisations, groups, materials or ideas (Kozinets, 2010; Scott, 2013). This indicates the importance of the retweet function of Twitter in generating the data traces that are amplified in the methods assemblage as measures of network and community. Taking boyd *et al.*'s (2010) motivations for retweeting, the importance of retweeting in the structure of the network-assemblages is based on the generation of the affective components of online community as displays of: emotional support; loyalty; homage; and recognition as well as a form of information diffusion. So retweeting may be an important component in the generation of a sense of virtual community on Twitter.

In this section, I discuss the analysis of the whole event series networks while the analysis of individual events is presented and discussed in later chapters of this thesis.

## The discussion communities

### The event communities

A network analysis of all the data from the Chat A events over the four-month collection period identified 11 distinct cluster groups based on interactions between the 105 unique participants (Figure 12). The cluster groups are identified using the Clauset-Newman-Moor clustering algorithm. This particular algorithm identified cluster based on the Betweenness Centrality of nodes densely tied to one another (Hansen, 2011). However, the working of the algorithm is not transparent but is 'hidden' within the SNA software used. The algorithm can be selected from a drop-down menu of clustering algorithms in the NodeXL software. This entanglement of researcher practices and technologies are an example of the deskilling and upskilling discussed by Adams and Thompson (2014) as the clustering calculations are black-boxed in the research software.

Of the cluster groups identified, seven are isolates where no interaction with other participants occurred and are generally where a participant made a single tweet using the event hashtag. The remaining four groups are where the substantive interactions occur.

The network visualisations show the intensity of interactions denoted by the identification of 5,324 ties/ links between the 105 participants. Graph density is a calculation of the total number of links or ties in a network in relation to all the possible ties in that network. A graph density of 0 is where there are no ties between nodes in the network while a density of 1 shows that each node is connected to every other node in the network. The overall graph density of the Chat A network was 0.0809 meaning 8% of possible network ties were generated through user mentions, replies and retweets. In

comparison, a social network analysis of GitHub users (Weber, 2012) found a graph density of 0.001 while Smith, (2011) in analysing a Twitter network for a workshop at the University of London found a graph density of 0.053. The Chat A events densities suggest that these events involve little direct conversation for what are described as ‘chat’ events. Studies of online class based interactions have found much higher graph densities. Martínez, Dimitriadis, Rubia, Gómez, and De la Fuente (2003) found online class discussions (based on the initiation, response and feedback model) generated graph densities of between 0.34 and 0.47 while information sharing activities generated densities of 0.29-0.53. But the chat events are not formal learning ‘courses’ and so lower levels of interactivity than in a formal online class setting might be expected.

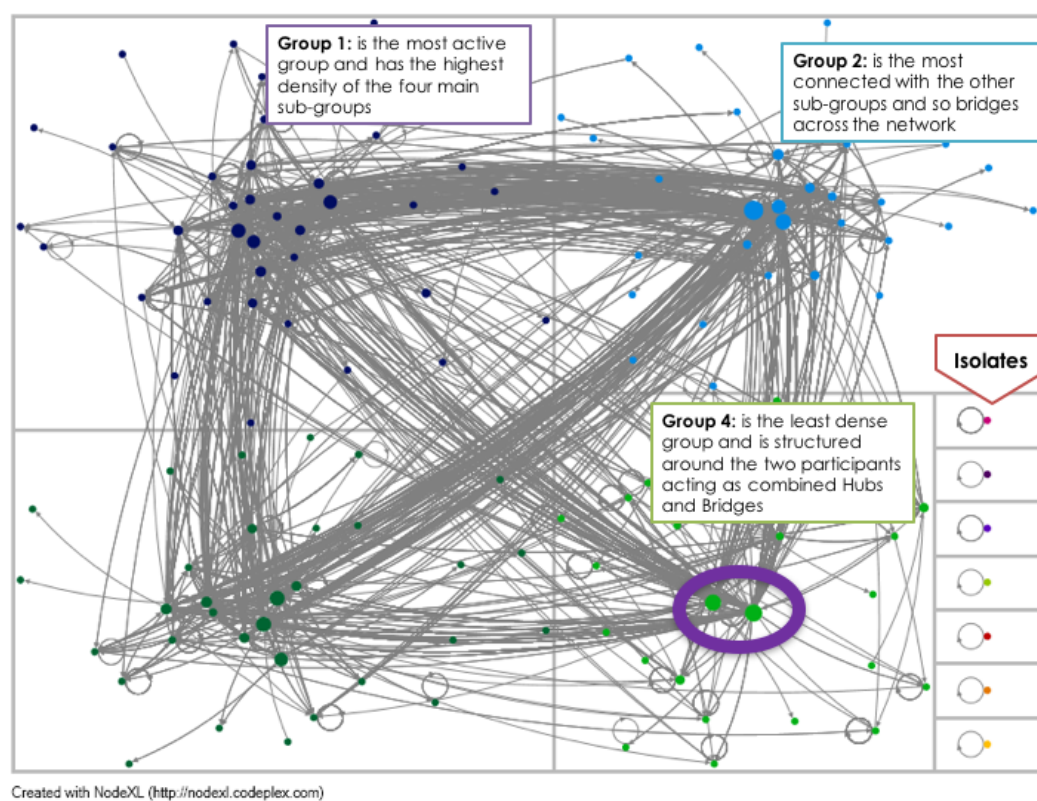


Figure 12: Chat A network diagram

Additionally, the effects of graph density are complicated by the role of cluster groups within networks. Density tends to be greater within rather

than between cluster groups (Burt, Kilduff and Tasselli, 2013). The overall graph densities found in the Chat A network 'community' will hide different densities within the individual clusters which then places greater emphasis on the broker roles enacted in the networks (Jordan, 2016). For example, two participants had the highest Betweenness Centrality scores of 1850.024 and 2394.224 against a mean average Betweenness Centrality of 173.63. These two participants are key to linking together the four identified main sub-groups or clusters, as indicated in Figure 12 above which shows the strong hub and bridge function of these two participants. Smith, Rainie, Himelboim, and Shneiderman (2014, p. 12) refer to such Twitter users as 'hubs' that are "relatively rare highly connected users". They also refer to 'bridges' as less connected users who perform a function in the network of lining together otherwise disconnected sub-clusters. In a learning specific context, Jordan (2016) discuss the roles of information brokers and identifies the role of 'co-ordinator' who mediate ties between members of the same community or network. In Chapter 8 (see the section: 'Accomplishing the facilitation of learning'), I discuss this co-ordinator role in the context of the facilitation of learning.

In the case of the total Chat B events (Figure 13), the Clauset-Newman-Moor clustering algorithm identified 37 cluster groups, of which 23 were of isolates and a further eight groups had fairly small number of members. So the main densities of interaction occurred across six cluster groups. Two of the larger groups (3 and 4) display strong central 'hub' nodes that are structurally central to the density of those sub-group clusters.

The higher number of significant clusters further confirms the more disparate and fragmented nature of the Chat B community as a whole and that it may

offer a site of greater discursive diversity and dispute than the first event community

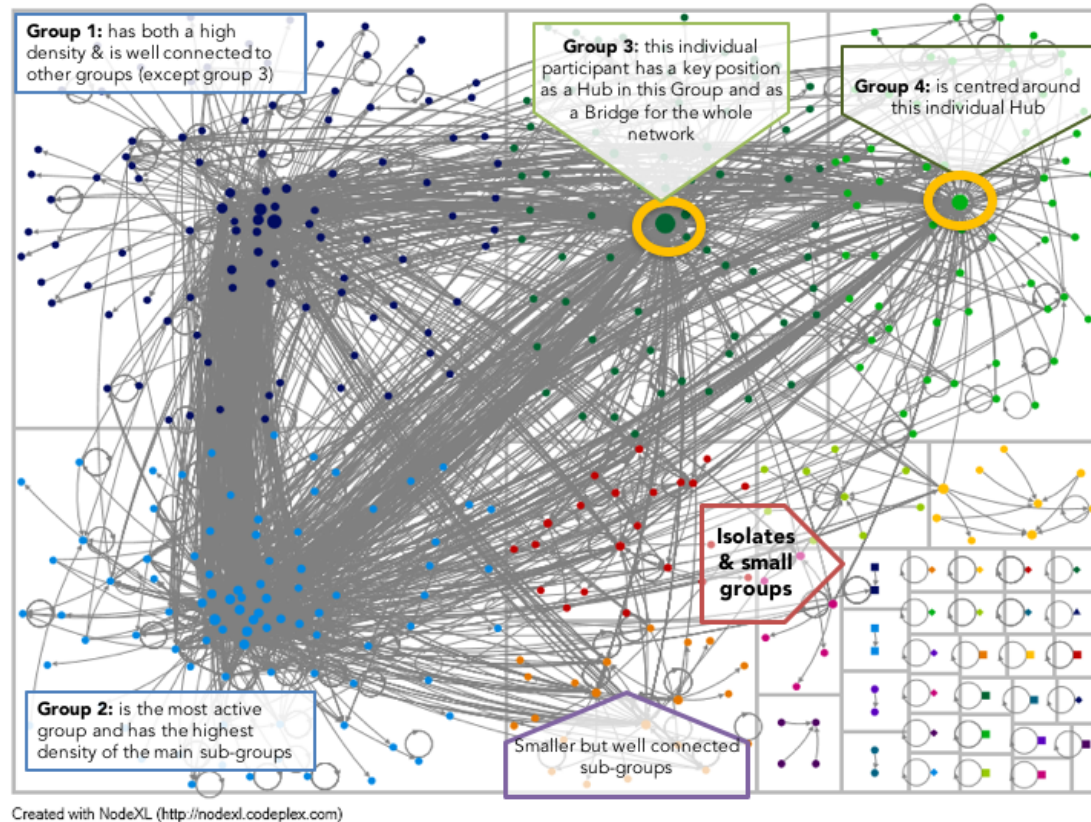


Figure 13: Chat B network diagram

The more dispersed network is confirmed by an overall graph density of 0.0181. However, the Chat B graph modularity (measuring the quality of groupings) of 0.1040 against the Chat A event modularity of 0.0681 suggests that there is greater intensity of connections between and within the groups.

In terms of Graph density, only 1.8% of participants interact directly within the overall Chat B network compared to 8% for Chat A. This is a further indication of the non-conversational nature of these 'chat' events although it should be noted that graph density does tend to decrease as the network size increases (Yamkovenko and Hatala, 2015). So the lower density in Chat B can



be partially attributed to the larger number of participants or nodes within that network compared to Chat A.

Both event communities can be characterised as being 'tight crowds' (Smith *et al.*, 2014). Such communities have strong, active and dense connections including robust bridges between sub-clusters as indicated by the high level of sharing between groups in each network. Tight crowds "share a common interest and a common orientation and have few isolates within the network" (Smith *et al.*, 2014, p.21). The two 'tight groups' presented in the report are from the Modern Languages Association conference, #MLA13 (Smith *et al.*, 2014, p.24) and a Twitter chat group formed around the hashtag #cmgrchat or #smchat for digital community managers) (Smith *et al.*, 2014, p.22):

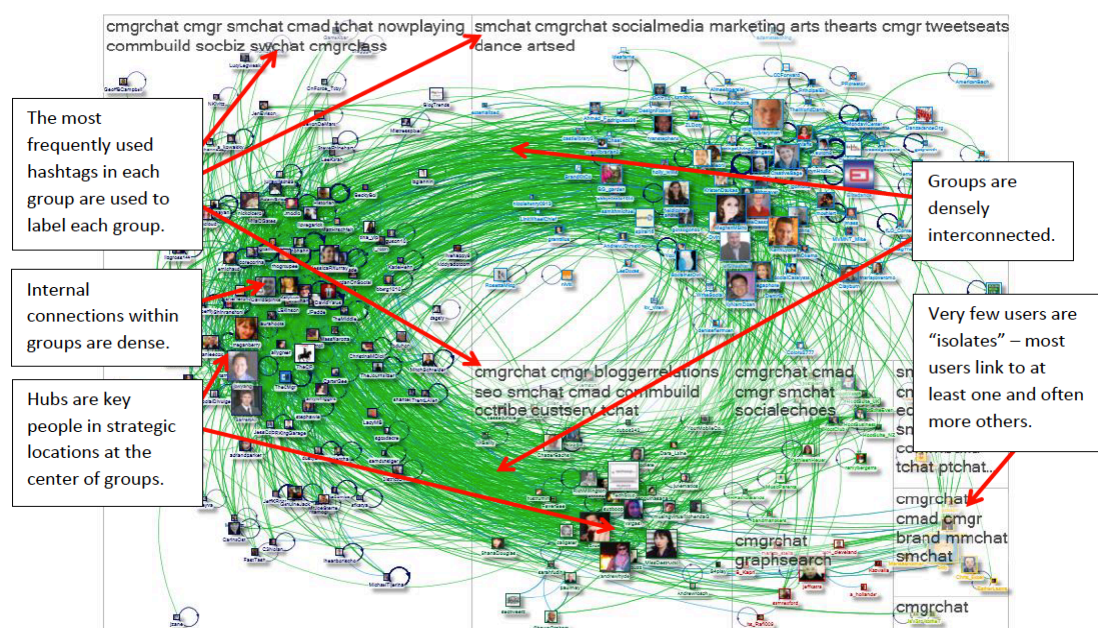


Figure 14: An example of a Tight Crowd network

Smith, *et al.*, (2014, p. 27) go on to emphasise that: "Groups that use language in unique ways often create Tight Crowd networks. ... Technical terms, hobbyist vocabulary and professional events like conferences are all examples

of topics that form Tight Crowd networks". In other words, such Tight Crowd networks generate the territorialising effects of Deleuze and Guattari's (2008, p.321) professional refrains as common discursive structures and resources that generate discursive communities and the emergent framing of professional identities.

The distinctions between the Chat A and Chat B network communities should be treated with some caution given the different sizes of the networks: Chat A having 105 unique participants compared to Chat B's 305. Furthermore, 32 individual actors participated in both chat event communities. Therefore, the two event communities can be treated as a single network as presented in Figure 15.

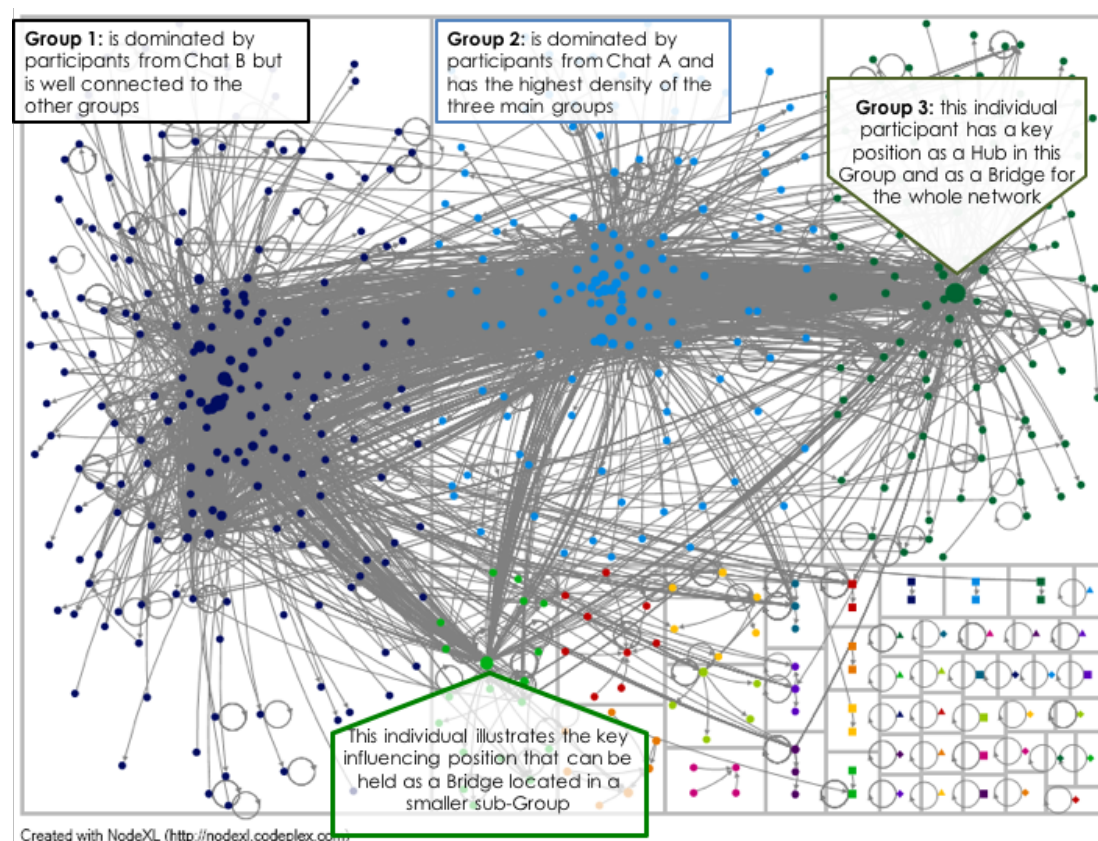


Figure 15: A single network view

The higher degree of linkages between the different groups of participants in the different events indicates that the clustered sub-groups identified in the analysis are not clearly clustered around the specific discussion event communities but rather cross-over and interweave between the two event series. As an example, one participant joined in both the Chat A and Chat B events of 19 September. In the course of the second event, on learning from travel, that particular participant referred to the topic of the earlier Chat A event on design thinking:

*A1 travel AND observation broadens the mind. In design thinking you take on an anthropologist's eyes. Seeing what's missed by many*

So the two event communities become further entangled in terms of both participants and ideational content.

In the case of the whole network of both chat event communities in Figure 15, the Tight Crowd network is undermined by an increased fragmentation. The Clauset-Newman-Moore clustering algorithm generates 47 cluster groups, one less than the combined totals from the Chat A and Chat B networks. Of these cluster groups, the largest majority (Groups 5 – 47) consist of individual isolates and small groups of participants weakly connected or completely isolated from the larger groups. While this indicates that a number of participants were not really engaged in the discussion events, the majority of participants were densely clustered in the larger groups (Groups 1 - 4). While participants from both event communities have been clustered in these four groups, those from Chat B dominate Group 1 while Group 2 is almost exclusively made up of participants from Chat A. Of the three largest groups, Group 2 has the highest internal graph density. This may be seen as reinforcing the earlier observation that Chat A is a tighter network compared to Chat B. Furthermore, ties between cluster groups in the combined network



are weaker than in the individual chat event series networks. In Chat A, 42% of network ties are shared between cluster groups, this reduces to 32% in Chat B and reduces again to 15% in the combined network. So, as might be expected, the combined network is more fragmented or balkanised than the individual chat event networks.

From this analysis of the combined network, it would be anticipated that the common discursive structures are less stable in the combined network and so the emergence of a discourse community is weaker. Thus a common professional discourse community and professional identity are more disputed and subject to translations and retranslations between, as well as within, the two event communities. Similarly, it may be that knowledge sharing and learning is mobilised to develop and strengthen group cohesion. Group 5 – 47 have little effect on the linkages and interactions of the overall network. Groups 1 and 2 can be seen as bounded by discourses of their specific event communities and hashtags (Chat B and Chat A respectively), Groups 3 and 4 may hold a more fluid and liminal position. Group 3 may be a space where different ideas, arguments and resources are exchanged between the two event communities to potentially stabilise as common discursive structures of a collective professional identity.

The SNA amplifies the structures of groupings and linkages generated in the activities of the Twitter chat events. The analysis indicates that the larger the network, the greater emphasis is placed in within cluster group ties at the expense of between cluster interactions. The network analysis also emphasises the potential influence played by participants acting as brokers between different cluster groups. This form of analysis is only possible through the data captured by the Twitter API and its potential for export to the selected SNA software. As Ford, et al., (2014) these network visualisations

## Keyword analysis



Keywords from both samples of the events were identified by exporting the tweets as a single plain text document and analysing word frequencies using the AntConc tool<sup>18</sup>. Common words such as ‘to’, ‘the’, ‘and’, and so forth

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were not included as words of interest and were eliminated from the analysis to concentrate on the more substantive keywords. The word cloud application, Wordle<sup>19</sup>, eliminates these common words by default and so these word clouds (Figure 16) were used to validate the selection of the keywords as follows:

Chat A			Chat B		
	Keywords	% of total words in the sample of events		Keywords	% of total words in the sample of events
1	Learning	0.80%	1	Learning	0.81%
2	Learn	0.40%	2	Learned	0.61%
3	People	0.39%	3	Culture	0.46%
4	Learned	0.39%	4	People	0.39%
5	Work	0.37%	5	Work	0.35%
6	Culture	0.29%	6	Community	0.21%
7	Data	0.28%	7	Backchannel	0.18%
8	Design	0.20%	8	Change	0.12%
9	Learners	0.16%	9	Working	0.12%
10	Thinking	0.16%	10	Perseverance	0.11%

**Table 8: Keywords**

The dominance of the keywords of ‘learning’, ‘learn’ and ‘learned’ can be expected given both event series focus on the professional domain of HRD. This professional domain is also indicated in the prominence of such words as ‘work’ and ‘culture’.

These keywords were then used to inform the co-term analysis (Jacobs, 2002). However, as Markham and Lindgren (2012) describe, the meaning of the keywords and co-terms or collocates, emerged through iterative processes of exploring the data in relation to the context it was located in. In the same way that the meaning of a tweet may be bound with the interactions it is located

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<sup>19</sup> <http://www.wordle.net/>

between, so in the research process, the meaning of these keywords emerged in specific dialogue with the context of my research interests and concerns. Therefore, the outputs of this analysis is presented in the specific contexts analysed in the later chapters in this thesis.

It is worth noting at this stage that analysis of the research data reveals that a focus on keywords generated a suppression of the importance of more common words. In particular, as discussed in Chapter 8 (see the section: 'Learning as technologically determined'), pronouns and modal verbs are important components in the generation of specific orders of discourse. Terms such as 'us', 'we', 'them', or 'our' (learners) are important terms in territorialising the professional domain of chat events participants and in stabilising the chat events themselves. So as I engaged in further sense-making manipulation of the data, these common words were drawn back in to the domain of my study and in the generation of the research findings.

## Content analysis

The structure of the discussion events was analysed using an adaptation of Belnap and Withers' (2008) functional categories for categorising discussions. These categories are clustered according to their functions in a discussion as (i) initiating and building on substantive content; (ii) assessing the validity of prior contributions; (iii) additions based on preceding contributions and (iv) various utterances that do not make a significant contribution to the structure or content of the discussion (see Appendix 1 for the 16 categories used).

Figure 17 and Figure 18 present the breakdown of these categories for the two chat events. In both cases, the importance of the Building functions in the

structure of the discussions is clear. Participants engaged in contributing to the building blocks of sequences (Suggestions; Propositions; Information) as a dominant category in Chat A and especially Chat B. In Chat A, Building tweets represent 37.7% of all tweets posted in the events while this category represents 47% of the Chat B event tweets. The Building category contributes to the mobilisation of Mercer's (2004) notion of cumulative talk as discussed in chapters 3, 4 and 8 and is associated with the concept of 'instructional talk' I discuss further in chapters 6 and 8.

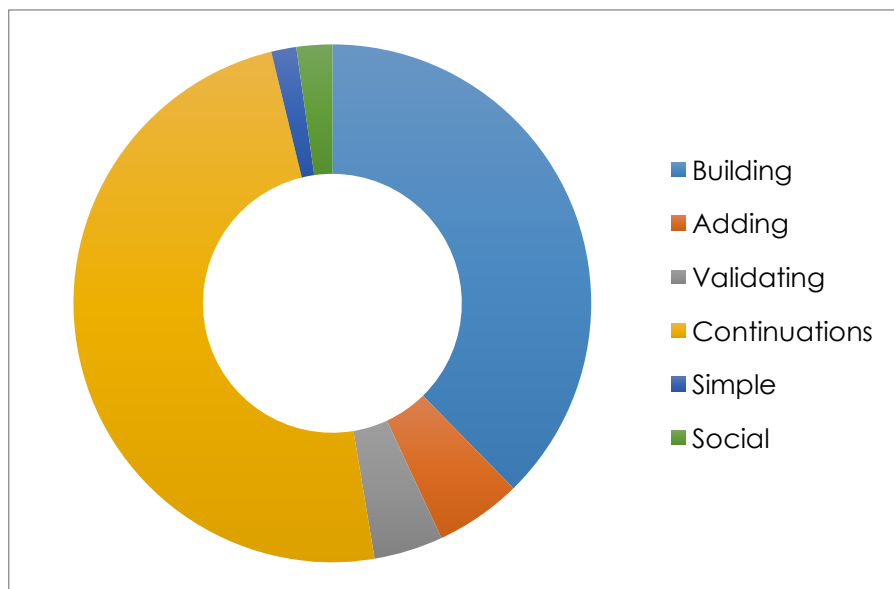
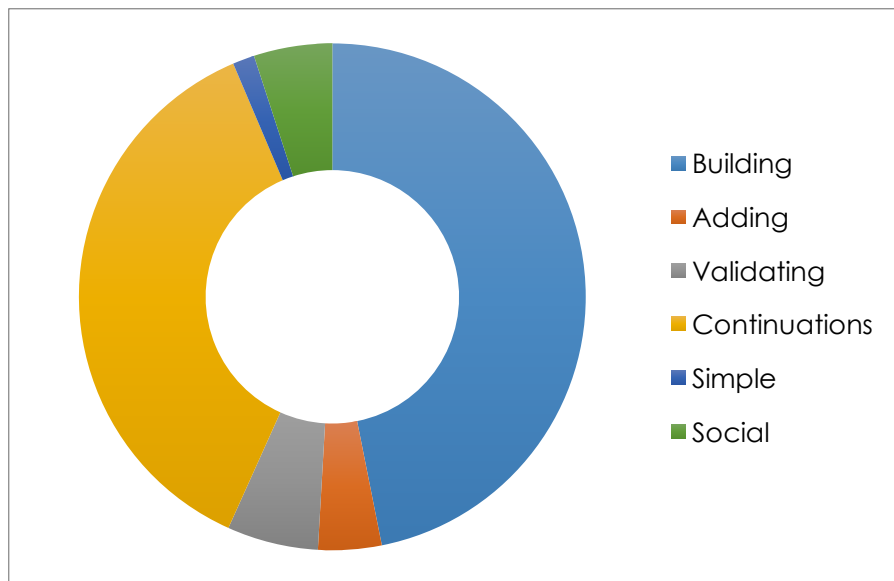


Figure 17: Chat A discussion function categories



**Figure 18: Chat B discussion function categories**

The analysis of both event series also indicates that Validating prior contributions tended to be limited to positive comments (Confirmation; Justification) with a few Qualifications and very few direct Invalidations. Hence, there was limited evidence of direct challenge and dispute in the Twitter chat events. However, this does not mean that conflict and assertions of power relations were not present and I discuss examples of these in the remaining chapters of this thesis. However, overt examples of disagreeing with another's tweet were very rare.

Continuation tweets (which includes Continuations, Incompletes, Requests and Restatements) cover 48.8% of the Chat A tweets and 36.9% of the Chat B tweets. The level of Continuations can largely be explained by the inclusion of retweets as a form of Restatement.

However, many tweets remained difficult to categorise, for example, between Justifications and Clarifications or between Propositions and Suggestions. Categorising tweets between the broader categories of Building, Adding, Validating, Continuations, Simple and Social was fairly straightforward. The

Belnap and Withers (2008) approach proved useful in identifying the broad functions of tweets within the overall event tweet stream and contributed to the identification of particular discursive styles including cumulative talk and instructional talk, as well as identifying specific incidents of disputation and the patterns of interactions surrounding the emergence of trajectories of difference and dissent.

The content analysis also interfaced with the use of Discourse Structure Analysis (DSA) (Holmer, 2008) in developing various forms of visualising the structure of the discussions in the chat events.

As can be seen in Figure 19, discussion sequences tend to build up over a number of short exchanges. The sequence is initiated by a direct question from the moderator receives only one direct Suggestion. However, the initiating question also appears to provide an umbrella for a series of propositions contributing to the broader topic of the event that, in turn, generate further exchanges.

Proposition B2 (Figure 19) initiates a new exchange of requests for information on the future progress of an organisational change initiative. This exchange of requests terminates when the original author of Proposition B2 confirms that further information would be posted to the event blog. However, the sequence commencing under Proposition D appears to terminate at a Restatement (at 8:51:16).

Throughout the events, sequences are displayed in a fragmented manner co-terminously with other sequences, such that each exchange sequence becomes difficult to follow. Twitter is particularly difficult as the discussion event is often presented as a single chronological list of tweets so it is often

difficult to identify whether a tweet is part of an existing exchange or not.

This difficulty may account for the seemingly short duration of each sequence 'run'.



8:45:18	Initiation				
Each column represents a separate sequence of exchanges in response to the initiating question.					
8:46:34	Suggestion A				
8:47:07		Proposition B			
8:47:32			Proposition C		
8:47:59				Proposition D	
8:48:13			Restate (retweet)		
8:48:22			Restate (retweet)		
8:48:36					Proposition E
8:48:50				Restate (retweet)	
8:48:55		Extension/ qualification			
8:49:45				Simple response	
8:49:49				Restate (retweet)	
8:50:34				Invalidation/ new proposition D2	
8:50:35	Restate (retweet)				
8:51:06				Qualification	
8:51:26				Restate (retweet)	
8:53:24		Qualification			
8:54:24		Extension/ new proposition B2			
8:55:35					Restate (retweet)
8:55:38					Extension
8:56:16	Restate (retweet)				

**Figure 19: An example of a chat event discursive structure**

So these Twitter events appear to exaggerate many of the key features of unstructured discussions identified by Belnap and Withers (2008, p. 8) including: sequences extending over many exchanges; overlapping exchanges and sequences; short sequences and sequences re-emerging later in discussions. This fluid structure to the discussions partly explains the emergence of alternative discursive strategies to enhance discursive coherence.

I explore the effects of these discursive structures on the chat event assemblages further in chapters 7 and 8.

## Summary

My aim in this chapter is to present aspects of the outputs of the initial phase of analysis of the research data. While aiming to provide a sense of the structural patterns of the Twitter chat events, my analysis continues to amplify the fluid complexities of these research sites enacting a 'network sensibility' (Markham and Lindgren, 2012). As such, this chapter shows different rendering and readings of the data to surface different components, effects and emergent lines of enquiry in the chat events: to amplify different realities of the Twitter chat events. This chapter addresses my first research question: How do the entanglements of materials, technology, text and people generate particular structures and patterns of interaction in the events?

The descriptive statistics, analysis of addressivity and the Social Network Analysis surfaces the emergence of diverse ways in which the chat event assemblages sought to generate coherence and stability in the event discussions. These diverse ways include emergent discursive actions as

markers of topic coherence, the mobilisation of functions of the Twitter software and the structures of the chat event networks, and the importance of particular brokerage roles in linking group-clusters to generate single event networks. The analysis also highlights the absence of disagreement and diversity in the discussions. Rather, there is a dominant discursive style of building on previous statements through confirmation and elaboration.

Furthermore, the analysis confirms aspects of findings from other research in Twitter: that the majority of content is authored from a small minority of participants and that the events are not particularly conversational. Much of the analysis amplifies the 'busyness' of the events in terms of the volume of tweets and the pace of the events as a whole. Drawing on discussions in Chapter 2, the descriptive analysis of the events indicates how the Twitter chat events are performative enactments of the pace and acceleration associated with the new capitalism discourses of the knowledge economy.

The research work presented in this chapter provides a baseline of understanding the main characteristics of the assembling of the chat events. In iteratively working with different renderings of the data and analysis, I was conscious of resisting the trajectories derived from these research methods and the tools used that pointed towards reductionist accounts of the data. The benefit of this analysis is in identifying possible points of entry in to the event network assemblages for further analysis such as: particular busy periods of activity in a single chat event; sequences of disagreement and dispute; following the most active participants; and analysing the discursive actions of key participants as brokers between group-clusters within the event networks. These points of concern allowed for the drawing in of Critical Discourse Analysis to further elaborate on the data in addressing the remaining three main research questions of this study:

1. how is the professional domain of HRD defined and redefined in the events;
2. in what ways do the chat events collectively enact the concept of online community;
3. how do the events constitute the performance of professional learning and knowledge sharing; and
4. how do the entanglements of materials, technologies, text and people generate particular structures and patterns of interactions in the events?

These four questions guide the following three chapters in this thesis.



# Chapter 6: The Domain of HRD

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## Introduction and overview

In this chapter, I investigate the Twitter chat events as sites where particular definitions of human resource development (HRD) are negotiated and assembled. As discussed in the Literature Review (Chapter 3), defining HRD is problematic as both a professional domain of practice (Lee, 2001; Gold *et al.*, 2010; McGuire, 2011) and as a scholarly domain of enquiry (McLean and McLean, 2001; Gold *et al.*, 2010; Hurt, Lynham and McLean, 2014). The lack of a clear definition of HRD has generated a sense of it as a fluid and constantly expanding domain of practice (Stewart and Sambrook, 2012). Arguably, this expansion generates such a breadth of definition as to render the term HRD itself meaningless (Lee, 2001, 2010). So there seems to have been little change from the situation identified by Walton (1999) of the domain of HRD as a contested accumulation of diverse practices.

While some scholars see this lack of a widely accepted definition as a strength for HRD (Lee, 2001), others cite the absence of a clearly bounded domain as a hindrance to both scholarly analysis and the development of professional practice (McLean and McLean, 2001; Walton and Valentin, 2013). The contested nature of the domain undermines the development of conceptual coherence and empirical rigour (McGuire, 2011). The metaphor of HRD as a hologram (McGoldrick, Stewart and Watson, 2001) is an attempt to present a singular conception of HRD without seeking to stabilize or simplify it as a domain of practice or of enquiry.

The purpose of this chapter is to explore how assemblages of discursive actions and structures, material resources and technological effects territorialise HRD as a domain of professional practice. The Twitter chat events are treated as an “instantiation of practices in which they are embedded” (Gillen and Merchant, 2013, p.49) that entangles diverse intentions, technological and algorithmic effects, collective norms and text to generate, enact and bound definitions of the professional domain.

The chapter initially draws on data from a particular chat event that discussed what was at the time a newly launched set of professional standards: the Learning and Performance Institute’s Capability Map. The chat event involves the mobilisation of the dominant discourses as discussed in Chapter 2. These patterns generate discursive stances that act as resources or structures in the chat communities. The dominant discourses of the chat events engage with the role of technological changes, and particularly the emergence of social technologies in territorialising and deterritorialising the professional domain.

I argue that the Twitter chat events generate particular performative enactments of HRD practices. These enactments produce two important effects in the chat events: firstly, they act as ‘virtual attractors’ (DeLanda, 2006) in respect of particular aspects of HRD practices that, for example, privilege personalised and self-directed learning and technological determinism as components of HRD; secondly, these enactments contribute to a dynamic instability of regulatory regimes and normative expectations of idealised HRD practices. The chat events generate projections of ideal HRD practices while simultaneously producing alternative possibilities of the professional domain. Yet other trajectories of the professional domain become

framed as 'virtual repellents' in their effects of defining what HRD should not be. Such repellents may refer to specific practices, for example, using Kirkpatrick's four level model of training evaluation or off-the-job training, as well as more general 'repellents' like, slowness in the pace of change; not addressing organisational needs or management demands and not challenging managers enough. I argue that the chat events engage in assembling HRD as a professional domain in crisis whilst also acting as sites of acceptance and contestation of that crisis.

I extend McGoldrick, Stewart and Watons' (2001) metaphor of HRD as a hologram by drawing on the concept of socio-material enactment of multiple realities (Law, 2008; Harman, 2014). For example, I argue that the chat events generate a dominant discourse privileging 'realities' of HRD that place organisational performance above personal development while also advocating practices that HRD provide opportunities for informal, social and self-directed learning. The fluidity of the boundaries of HRD is not just an issue of the representation of HRD as a domain of practice and knowledge as suggested in the metaphor of the hologram. Rather, I argue that the multiple realities of HRD as assembled in the chat events are highly contingent, situated and, often, temporary. But at the same time, the chat events strive to identify and enact an idealised and de-situated HRD archetype. This emerging nascent HRD archetype enacted in the performance of the chat events is open, distributed, technologically dependent, relevant, effective and distinct from mainstream HRD practice.

So the framing of HRD as only of value in terms of the extent of its contribution to the improvement of corporate performance positions the profession in alignment with the broader discourses of learning in the knowledge economy. and the idealisation of the self-directed and self-



programmable knowledge worker (Castells, 2000a; Simons and Masschelein, 2008). Hence, HRD practice presents itself as subservient to a new-capitalist discourse that emphasises adaptability, innovation and speed (Gee *et al.*, 1996).

## Territorialising the professional domain

Human Resource Development (HRD) is a disputed professional domain generating an extensive range of definitions. As discussed in Chapter 3 (see the section: 'HRD: a practice and semiotic perspective'), some scholars find the fluidity of HRD to be a source of strength or robustness (Lee, 2001, 2010) while others have looked for mechanisms of reconciliation between competing discourses of HRD and contested accumulation of practices (Walton, 1999). Arguably, the demand for coherence of the professional domain has intensified following the global financial crisis of 2008 (Gold and Bratton, 2014). The example of the metaphor of the hologram (McGoldrick, Stewart and Watson, 2001, p.350) is one mechanism for generating an idea of coherence in defining HRD, as is the more recent interest in analysis of discursive inter-subjective meaning-making from HRD practices (Rigg and Trehan, 2002; Corley and Eades, 2006; Francis, 2007; Metcalfe, 2008; Lawless *et al.*, 2011; Valentin, 2014; Garavan, McGuire and Lee, 2015).

My interest here is in how, in the context of an unstable and contested professional domain, these particular gatherings of HRD practitioners territorialise and assemble 'HRD practice'. The Twitter chat events are sites of intra-action between the discursive practices that negotiate and renegotiate the discursive structures, repertoires or resources of the events and the functions, structures, opportunities and constraints of Twitter and the wider

chat event 'web sphere' (Schneider and Foot, 2005). As as socio-material network-assemblages, the Twitter chat events involve processes of enrolment and translation to generate recurrent patterns that in turn generate the effects of stability (Fenwick and Edwards, 2010) and coherence (DeLanda, 2006).

## Processes of territorialisation

The coherence of network-assemblages occurs through processes of territorialisation and deterritorialisation (Deleuze and Guattari, 2008). For the purposes of this chapter, I draw on the Actor Network Theory concept of translation to analyse the transformation of components within network-assemblages (Harman, 2009, p.15) to amplify particular definitions of the professional domain of HRD. I argue that the processes of translation in the events are seeking alignment with discourses of learning in the knowledge economy that idealises the self-directed and self-programmable knowledge worker (Castells, 2000a).

From this perspective, HRD is not defined through 'top down' diktats of institutional authority but rather is defined in dynamic discursive and material aggregations of professional practices (Barad, 2007; Reich and Hager, 2014). Such practices generate both restrictive and expansive effects that stabilise existing relations and networks of the professional domain while also generating other effects that have the potential to initiate new assemblages (DeLanda, 2006). So network-assemblages of professional domains involve gatherings of capacities for stabilisation and boundary setting, yet those same capacities also include the potential of "being something else" (Beighton, 2013, p.1301). This focus on the dynamics of assemblage enacts the metaphor of HRD as a hologram in terms of making visible the diversity of actual and potential components of the field of practice (McGoldrick, Stewart and Watson, 2001).

The remainder of this chapter investigates the material-discursive practices of particular gatherings of HRD practitioners who seek to negotiate points of consensus and stability in talking their profession 'into being'. The chapter explores how regulatory regimes are produced and undermined through competing projections of practice and simultaneously alternative possibilities of the professional domain emerge in the Twitter chat events.

## Assembling the competent HRD practitioner

The starting point for the analysis of how the Twitter chat events generate a territorialisation of HRD as a domain of professional practice is a specific chat event. This chat event was part of the Chat A series and was focused on one example of an HRD-orientated body of professional knowledge, the Learning and Performance Institute's (LPI)<sup>20</sup> Capability Map.

The LPI was formed out of the IT Training Institute rebranding itself to reflect a broader interest in learning and development ([www.thelpi.org](http://www.thelpi.org); Atkins, 2013). The LPI describes itself as: "... a global Institute for Learning & Development professionals. Established in 1995 the Institute has grown on an annual basis to become the leading authority on Learning & Development".

The LPI is mainly based in the UK but with membership organisations now in the Netherlands, Belgium, Hungary, Rumania, Serbia, Australia, and New Zealand<sup>21</sup>. Mirroring the contested and heterogeneous nature of HRD, the LPI

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<sup>20</sup> <http://www.thelpi.org>

<sup>21</sup> As of January 2017.

is one of a number of professional associations for HRD practitioners. For example, other bodies based in the UK include: the British Institute for Learning and Development; the Institute of Training and Occupational Learning; the Education and Training Foundation and the Society for Education and Training. However, as Gold and Bratton (2014) argue, in the UK the status for the HR professional is most commonly acquired through membership of the Chartered Institute of Personnel and Development<sup>22</sup> (CIPD).

The CIPD is a robust, stable and extensive actor-network that aligns with other robust, stable and extensive actor-networks that enrol state and governmental networks associated with the Royal Charter; the Further and Higher academic institutional networks in the UK and beyond; research funding, conferences, academic publications and academic associations;<sup>23</sup> National Qualifications and, by extension, European Qualification Frameworks and occupational standards. But despite this extensive actor-network, the CIPD assemblage does not, or cannot, capture the full range of HRD practices (Hamlin and Stewart, 2011).

The fluid and flexible professional domain of HRD practice is further reflected in the range of professional associations that may be positioned as a

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<sup>22</sup> Chartered status refers to a Royal Charter that grants a particular right or power to a corporate body. For example, most UK universities are granted the power to award degrees through Royal Charter. In the case of professional institutions, Royal Chartered status does not necessarily include a power to regulate the profession and in the UK there is no requirement to be a member of the CIPD to be a human resource development practitioner.

<sup>23</sup> In particular, the European-based University Forum for HRD (UFHRD) and the North American Academy of Human Resource Development (AHRD).

suitable 'home' for an HRD practitioner in North America. These associations include the Association for Talent Development (ATD); the International Society for Performance Improvement (ISPI) or the Association for Education Communication and Technology (AECT) (Davidson-Shivers and Barrington, 2004). The geolocation data from the Twitter API of the chat event participants suggests that there are participants from all continents (except Antarctica) although participants are predominately from UK, USA and Australasia.

Established professional associations such as the CIPD generate a comparatively stable and predictable network assemblage that is less permeable to acts of translation, retranslation and realignment. This institutional stability is in tension with the fluid, contested and expansive nature of HRD and this tension enables the generation of new potential professional assemblages, of which the LPI Capability Map is an example.

In 2011 the LPI introduced a Capability Map as a materialisation of particular notions of HRD professional standards. It is a standalone statement of HRD standards distanced from the stabilising effects of other institutional networks. As such, I saw a Twitter chat event on the LPI Capability Map to be a valuable opportunity to begin the analysis of the material-semiotic processes HRD practitioners use in reporting on and defining their professional domain.

## The Capability Map

The LPI Capability Map presents 27 skills across nine different categories including traditional HRD categories such as the live delivery of face-to-face

learning interventions as well as newer skills areas supporting collaborative learning (Table 9).

Category	Competency
Analysis and strategy	Assessment and evaluation Competency management Learning strategy Performance analysis
Business skills and intelligence	Communication, marketing and relationship management Financial management Industry awareness Procurement
Collaborative learning	Developing collaborative learning skills Supporting communities of practice (CoP) Supporting content co-creation and curation Supporting work teams
Learning delivery management	Project management Change management
Learning information management and interpretation	Information architecture Data interpretation
Learning resources	Design Content creation
Live delivering	Presentation delivery Face-to-face learning Virtual/distance learning
Managing the learning function	People management and development Process management and improvement Resource management
Performance improvement	Performance support Coaching Mentoring

**Table 9: The Learning and Performance Institute Capability Map**

The Capability Map is operationalised as a self-assessment tool using broad ‘can do’ statements of behaviours at four different levels of accomplishment: practising; extending; guiding and leading.

Presented as a strength of the framework is the statement that it has been developed by ‘leading experts in the industry’. This is a similar claim to that made by the UK’s Chartered Institute of Personnel and Development

(Stewart and Sambrook, 2012) for their professional standards and reinforces Dirkx's (2008) idea of HRD as a 'narrative of practice'. However, the claims of the Map (and other similar frameworks) also seemingly reject the notion of the hologram metaphor of HRD. According to the LPI framework, HRD practice is not an unstable or disputed domain of complex competing perspectives and dynamics highly contingent on where and when it is being practiced. Rather, HRD practice can be simplified as a toolkit of instructions and instruments to be consumed and applied regardless of context (Gabriel, 2002). In ANT terms, such frameworks are presented as immutable intermediaries that can be transferred across different network-assemblages. Mitev (2009, p.15) describes intermediaries as "reflecting earlier translations of interest". Thus the 'narratives' of HRD practice are presented as clear, stable and unambiguous, applicable in any context. Such frameworks are inscribed by, and materialise an instrumental form of professional knowledge (Eraut, 1994) linked to the pragmatic and practice-based perspective of HRD (Dirkx, 2008). Hence HRD, as with other areas of 'management' knowledge and practice, faces a tension between the expectations of a professional field founded on generalisable and immutable practices and the realities of the contingent, fluid and flexible nature of actual HRD practice.

## Assembling a map of the profession

The discussion of the Capability Map (hereafter, the Capability Map chat) was part of the Chat A series of chat events<sup>24</sup>. The Capability Map was presented within a particular framing of the HRD profession that involved the mobilisation of an extensive collection of pre-chat reading and other

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<sup>24</sup> The data from this event was initially collected and analysed as a pilot study for this PhD research.

materials. The pre-chat material included a blog post (Couzins, 2012), an article from the Training Journal (Robert-Edomi, 2012) and an online presentation (Shepherd, 2012) collectively discussing HRD practitioners as facing an almost unprecedented set of challenges. These challenges arise from changing working practices, the supposed increasing pace and scale of organisational change and ever-tighter financial pressures that results in “our customers questioning the very basis of our [HRD] service offering” (Shepherd, 2012). These issues remain a concern for the arena of HRD with, for example, a recent overview of the profession describing it as weak and its status as marginal (Ruona, 2016). The CIPD Learning and Development Survey (CIPD, 2015, p.8) identified the HRD function as being perceived as “‘a reactionary tool’ or a ‘sticking plaster’ rather than as a as a ‘proactive tool for organisational development’”.

### The pre-chat material

The pre-chat material has the effect of translating the chat event as a whole in terms of a particular positioning on the dysfunction of the HRD profession. As a process of *interressment* (Callon, 1986), the problematisation of the HRD profession acts as a focal point for actors to engage in processes of translation seeking a “set of possibilities” to enrol other actors (Toennesen, Molloy and Jacobs, 2006). The problematising of a particular network entity, in this case the HRD profession, is a way of generating coherence across heterogeneous components of the chat event assemblage.

This pre-discussion material for the Capability Map chat mobilised particular discourses which normalise the notion that current HRD practice is failing in terms of business relevance and ability to respond to pace of change. Hence the Training Journal article (Robert-Edomi 2012), quoted a Corporate Leadership Council report (un-referenced) stating that under 25% of



respondents were satisfied with their company's training courses: "the same number felt that L&D had helped them achieve their business outcomes, and half of them would discourage colleagues from working with the L&D department". The article goes on to quote a HRD consultant that:

*We do this often long-winded training needs analysis, design and delivery process that takes time – we don't have that time. Learning is going on every minute of the day – all the time – and we have to accept that and work out how we can leverage it to the best effect (no pagination)*

The emergence of this prominent discourse in the pre-chat material suggests a nuanced approach to the two schools of HRD theory discussed in Chapter 3. The promotion of an organisational and utilitarian focus on HRD practice is drawn from the US School. Yet, from that School, the discourses associated with the adoption of structured learning methodologies and a formal/instructional approach to HRD are positioned as being part of the current problems facing the profession. Hence common professional practices associated, for example, with systematic learning design approaches are being aligned with failure in the profession and are being excluded from being the basis for new possibilities in the profession. Professional learning is being decoupled from traditional HRD practices and constituted as a component of knowledge work to be delivered and managed by the individual knowledge worker (Castells, 2000a; Simons and Masschelein, 2008).

At the same time, the strategic focus of the European School is promoted in the Capability Map chat event alongside a constructivist view of learning that is indirectly managed and pluralist (Robert-Edomi, 2012, no pagination):

*We need to think about the way in which humans learn: from the rich experiences we have, opportunities to practise deep and meaningful conversations and opportunities to reflect.*

However, the US School's economic discourse of performance is dominant in the pre-chat materials (Robert-Edomi, 2012): "We're moving to a world that focuses on performance and experience. There is a productivity and performance focus, rather than just a learning focus".

The preamble blog post (Couzins, 2012) for the Capability Map event also reflects this dominance, stating:

*Business agility and improved performance have become increasingly important. There is also recognition that an organization's learning strategy should to be aligned to business objectives with the focus moving from the L&D process to business outcomes.*

The translation of HRD as a domain concerned with enhancing organisational performance is therefore inter-textually embedded across the different material introducing the Capability Map chat event. This assemblage of background material translates the Capability Map as articulating the same definition of HRD as performance-focused and so attempts to generate an ordering effect on the subsequent chat event. This ordering effect shifts the focus of the event itself from HRD practices as personal development to a focus on organisational performance and effectiveness.

## The chat event

1.	@hea24	... as a business performance support person with an expertise in learning
2.	@irenegturner	... business skills, performance consulting not just training anymore
3.	@TrainingPete	less focus on 'training' and more focus on 'performance support'...
4.	@JoanMar2	Yes, ... We need to [show] measureable ROI and performance improvement #...
5.	@TrainingPete	First thing is a new mindset [and by asking what is] the least intrusive way to address [a] performance issue? #...
6.	@E2hpt	... set performance targets ... objectives ...measure against those [do not] just track learning activity #wasteoftime

**Table 10: A repertoire of performance**

Table 10 presents a sample of tweets from the Capability Map chat event that privilege an emphasis on organisational performance in HRD practices.

Tweet 1 shows a participant who describes their own professional field as focused on the goal of 'business performance support' and where learning is secondary to that goal. This is echoed in tweet 2 where professional practices are described as having expanded to 'performance consulting' while demoting the practices of 'training'. Tweets 1–3 place the emphasis on a discourse that privileges workplace and organisational performance and suggests concomitant changes in professional practice. However, tweet 1 presents a change of emphasis rather than a fundamental change of the practitioner discourse. Tweets 2 and 3 appear to suggest a mobilization of the discourse repertoire of performance as the necessary means of addressing the challenges faced by the profession. Furthermore, tweet 4 can be seen as an attempt to position the discourse structure of performance as a legitimated professional knowledge and discursive resource (Mäkitalo, 2012) with alternatives being dismissed as 'a waste of time'. So learning is positioned as subservient to performance and corporate objectives in the purposes of HRD practices.

Elsewhere in the Capability Map chat event a more nuanced positioning between the US and European Schools could be seen to emerge. One participant tweeted the URL for a blog post (Hart, 2012) that made the argument that all that HRD functions should be concerned with is organisational performance. However, the competing concerns with individual development and skills acquisition were acknowledged as important aspects of HRD practice but these, it was argued, should be the responsibility of the individual rather than the employer and HRD department. The blog post argued that individual portfolios of competence and learning are key to the future employability of workers and that through new technology some HRD practices could and should be re-situated outside the boundaries of the organisation as the responsibility of the individual. This framing of employability mirrors Tams and Arthur's (2010) findings on the changing relations between employees and employers within an increase in temporary organisational forms previously common only in specific sectors such as the film industry (Grabher, 2002; Bechky, 2006) – relations which privilege labour mobility, flexibility and entrepreneurship. Tams and Arthur concluded that to maintain and enhance their position in the labour market, individual workers: "... need to engage in external networks and build personal connections that make knowledge transfer and new learning possible" (2010, p.631). So the framing of HRD as contributing to the improvement of corporate performance positions the profession in alignment with the broader discourses of learning in the knowledge economy and the idealisation of the self-directed and self-programmable knowledge worker (Castells, 2000a; Simons and Masschelein, 2008). HRD practitioners in this chat event privilege the corporation or organisation over the individual. 'Development' in HRD becomes a process of aligning existing skills of individuals to corporate objectives and performance imperatives rather than

developing the skills of individual workers. It is increasingly the responsibility of the individual worker to develop and continually grow their skills and competences to meet the needs of the employer and so to maintain their 'employable' status within the knowledge economy. This specific chat event positions HRD practices as being subservient to the demands of the knowledge economy and the enterprising self as discussed in Chapter 2.

## Shaping the practices of HRD

### An imperative of change

In this section of the chapter, I start with further analysis of the Capability Map chat event and then draw in material from other chat events in the Chat A series and from Chat B.

The initial positioning of HRD in the Capability Map chat event is represented not as a natural or inevitable framing of the HRD domain but as an option or a possible future for the profession. The realisation of this positive future depends on choices and actions of professional actors. So the initial blog post introducing the Capability Map chat event framed the discussion in terms of HRD practitioners being at a crossroads and having to make a choice on which direction their profession should develop. The crossroads metaphor concurs with the notion of HRD as a contested domain of professional as well as scholarly practice. The crossroads metaphor is presented as a (Hobson's) 'choice' for HRD practitioners to either collectively choose to respond 'effectively' to these challenges or to risk 'becoming a deadweight'.

However, the event participants did not unquestioningly accept the metaphor of being at a crossroads or that this is currently a period of particular pressure for the profession. It was asserted that this situation is not new for HRD but rather the continuation of a longstanding issue that HRD practitioners were not addressing.

Figure 20 is a visualisation of frequently used words and their collocates. The visualisation displays the way in which co-words draw together to amplify the central discourses of the Capability Map chat. These co-words emphasise the pace and need for change driven by an instrumental approach to professional development.



Figure 20: Co-term visualisation from the Capability Map chat

The discursive structure of change as a permanent feature of organisational and professional life was continually reasserted throughout the Capability Map chat event as indicated in Table 11. In these two tweets, the idea of HRD practitioners having the capabilities and agency to select a number of potential trajectories of development is accepted. Yet, the possibilities of those trajectories are ignored and agential power is not exercised:

1.	@KgeeVeeranki	L&D has been at a crossroads for over a decade ... most ... ignored it #...
2.	@TrainingPete	We've been at crossroads numerous times, we just keep making the wrong turn #...

**Table 11: Reflections on the crossroads metaphor**

On reflecting on tweet 2 (Table 11) in a later blog post, the author changed their position arguing that rather than choosing an incorrect direction of change, HRD practices were simply failing to change direction in response to changing organisational needs at all. So that the view expressed in tweet 2 was later revised to align with that expressed in tweet 1 that the practices of many HRD professional has not changed despite pressures to do so. This also aligns with other assertions that:

*There was a need for speed and agility in today's organizations, and for L&D professionals to support them in being agile and responsive. But traditional approaches to learning were slow and unresponsive, making people wait for the information they needed rather than giving it to them when they really needed it (Robert-Edomi, 2012).*

To further emphasise and intensify the sense of the hopelessly out-of-date nature of these 'traditional' approaches to learning and development, one participant posted an image of a classroom from 1910 (Figure 21):



**Figure 21: Romsey School Classroom**

Image: G.Rom. K1. 7598 "Romsey School, c 1910" used with permission from The Cambridge Collection, Cambridge Central Library.

So the systematic and instructional design methods associated with the U.S School of HRD are here dismissed as hopelessly out of date and not fit for a modern organisation or society. The image used is one of passive and unengaging learning; the poor quality of the experience is replicated in and emphasised by the low quality of the image. The pupils can be identified as such by being seated in ranks of school desks, by either a uniform dress code or a school uniform while the distinctive status of the teacher is constituted by their position as the only people standing in the room. Learning is achieved through the acquisition of knowledge recorded from the (imaginary) teacher presenting at the front of the room. Furthermore, all the people in the image appear to be male. The blurring of the pupils' faces appears to emphasise the impersonal and anti-individual nature of systematic learning design methods. This is an image of education as didactic acquisition of abstract knowledge where the application of that knowledge is not just absent but made impossible by the configuration of the space. The



image suitably summed up this critique of the HRD discourses of off-the-job formal and instructional training:

1.	@RobThomson007	This is why we need to move on and develop new skills ... <a href="http://t.co/pJY2nAs1">http://t.co/pJY2nAs1</a> #...
2.	@Jpamelaw	RT @RobThomson007: This is why we need to move on and develop new skills ... <a href="http://t.co/XcJnnbKg">http://t.co/XcJnnbKg</a> < Haha! Indeed! #...
3.	@sharonbrown	@RobThomson007 TOO funny! #...
4.	@johnlearn	@RobThomson007 Sounds like a good thing to change. Ditch the "class room", perhaps. #...
5.	@RobThomson007	@johnlearn yep why do you need to be 'in' the classroom what can't be achieved using other techniques? #...

**Table 12: Classroom training**

Tweet 1 in Table 12 provides the initial link to the classroom from 1910 that receives a casual endorsement through a retweet (tweet 2) and a reply (tweet 3). However, tweet 4 indicates some hedging in the text of the tweet through the use of "perhaps". Tweet 5, from the same author as the tweet with the classroom image, reasserts the critique of classroom or off-the-job training. What is absent from tweet 5 is a claim that other 'techniques' for learning are better or more effective. Rather, the superiority of situated and on-the-job learning (Lave and Wenger, 1991; Willmott and Contu, 2003) is unstated and assumed to be a shared understanding.

This is one single example of a 'need for change' discourse that is a recurrent theme or refrain in the various chat events and is often framed in terms of the opportunities, both personal and organisational, that such change may bring. In the Capability Map event this theme was often expressed in terms of the opportunities associated with choosing the 'right' turn, as discussed in Table 11, or with the range and diversity of opportunities for development in and of the profession: "Not so much a crossroads, more of a spaghetti junction... So much opportunity to change."

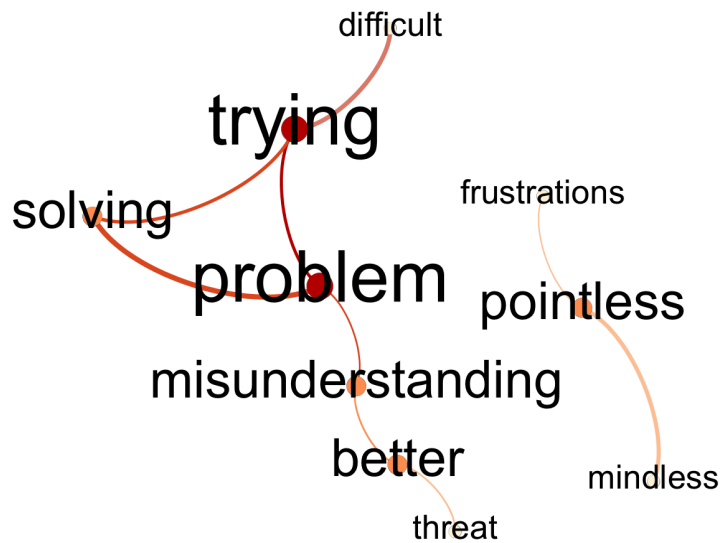


Figure 22: Capability Map challenges

Yet, as indicated in Figure 22, the opportunities for change are not necessarily being realised. The frustrations and challenges of change and of a self-perception of being part of a professional ‘vanguard’ are amplified in this collection of co-words and collocates.

This central metaphor of HRD being at a crossroads is destabilised at points throughout the discussion. However, the discourses of change are clearly stabilised and reproduced during the event as discursive resources of the professional community. The following sequence (Table 13) goes further in emphasising the ‘naturalness’ of change by asserting that HRD functions (L&D departments) are no different from any other function: change is an organisational norm.

1.	@edwardmcnally	...It's not just L&D though, most functions are having to re-evaluate what they do and how they do it – marketing, IT etc
2.	@sorrelathomson	RT @edwardmcnally: ...Its not just L&D though, most functions are having to re-evaluate < agreed ...! .
3.	@ClairRussell	The state of L&D is no diff to the state of all departments – greater scrutiny and justification of where everyone brings value

**Table 13: Change as an organisation-wide norm**

Change is presented as an organisation-wide norm to enhance value of all activities. But as tweet 3 above implies, value is orientated to the demands of the organisation. The chat events establish a normative expectation of the dominance of the needs and demands of the organisation as a discursive resource or discourse of the events.

The discourse on the need for change to provide value to ‘the organisation’ is a distinct discursive resource that is repeatedly mobilised during the different chat events. A later chat event from the same series frames the debate on the profession in terms of HRD practitioners not having the skills and attributes of other professions more attuned to the needs of “21<sup>st</sup> Century workplaces”:

*L&D professionals need to wake up ... internal customers who are working to take learning forward in these 21st century workplaces .... shaped by those who are passionate about contributing to business performance and committed to building skills and confidence of their staff ... What then, do you think about this prediction and, even more importantly, if you agree with it, what impact is it going to have on your job role and all those learners you serve.*

Similarly, another pre-chat blog post on ‘Big Data’ criticises the HRD profession for lacking data analysis skills and that "Not being prepared for Big Data when it starts to get truly useful is to condemn ourselves to obscurity." This position mirrors that found through analysis of self-assessment of skills using the LPI’s Capability Map where HRD practitioners lacked the skills and competence of data literacy (Taylor, 2013).

A further driver of a skills and abilities deficit identified for HRD practitioners is from the demands of ‘their’ learners. Especially in reference to

the scale, scope and pace of change in technology, HRD practice was often seen to be lagging behind others' use of social technologies in work and learning practices. Such discursive actions mirrored the critique of classroom based training to emphasise the importance of self-directed learning enabled through technology change. Furthermore, personal professional credibility is, as in the case of preparedness for 'Big data', translated as credibility of the profession as a whole.

The practices of HRD are assembled in these chat events through intra-actions of the network-assemblages of organisational performance, of technologies and of learning and employability in the knowledge economy.

### Pace of change

The discursive structure of constant change was also combined with a discourse of time and the pace of change. This discourse was initiated in the Capability Map chat event preamble, links to online articles and a recorded webinar that use images that emphasise technology and speed of movement. Figure 23 is an image used in the Training Journal article (Robert-Edomi, 2012, no pagination) linked to the chat event that shows a line of depersonalised and de-individualised computer screens blurred by a sense of (relative) speed.



**Figure 23: Pace of change**

In contrast with the classroom photo in Figure 21, Figure 23 is an image of modernity, of colour, brightness and dynamism. The image conveys a sense of change along a particular trajectory as inevitable and unstoppable and not subject to human agency. Rather, human actors are absent from the image: while people appear to be key components in the creation of a classroom in Figure 21, here the ranks of people in the classroom are replaced by ranks of computers. Change is an outcome of the forces of technology, data and globalisation against which people have no agency. Similarly, the expert presentation (Shepherd, 2012) uses a combination of natural images of the sky and trees alongside ‘high tech’ images of jet planes and chrome to emphasise that change is a natural state accelerated by technology.

Hence, HRD practice presents itself as subservient to a new-capitalist discourse that emphasises adaptability, innovation and speed (Gee *et al.*, 1996). For HRD to realise its potential impact on organisations, the discourse within the Twitter event clearly embraces speed as a positive, or at least, ‘natural’ phenomenon to be embraced uncritically. Hence speed is attributed positive cultural value (Tomlinson, 2007). Yet speed is also something to fear as many HRD practices are constituted as failing to change at the pace they should. There is a repeated concern that HRD practice will not change at the pace of business or technology and hence become a victim of an accelerating capitalism.

1.	@TrainingPete	... There [is] a growing [awareness] that traditional L&D approaches do not move at the speed of business.
2.	@KgeeVeeranki	... it's not that we don't move at the speed of biz, it's that we tend to avoid/ignore business issues (at our peril)
3.	@johnlearn	Yes indeed! RT @TrainingPete: ... There [is] a growing [awareness] that traditional L&D approaches do not move at

		the speed of business.
4.	@joanneJun1	... as lnrns must adapt, we have to adapt even faster than they do. Otherwise we lose credibility as profession
5.	@Feesflatt	.. Learners' life and work driven by tech. Learning is just trying to catch up

**Table 14: Speed of learning**

In Table 14, the sequence of tweets from the Capability Map chat present HRD practices as being in deficit to 'business'. Tweets 1 and 3 promote the idea of HRD as being historically slow to react to emerging 'business need'. However, tweet 2 constitutes this as not an issue of speed but rather that HRD has a tendency to fail to be aligned to 'business needs' and therefore, by implication, was not perceived to be providing value to the business.

The imperatives of working at the 'speed of business' could be found in other chat events. For example, particular approaches to HRD practice were devalued when perceived as not being appropriate to the pace of working in organisations. The excerpt of tweets in Table 15, are from a different chat event in the Chat A series on the use of Design Thinking in HRD:

1.	It is more time consuming. I wouldn't use design thinking on poaching an egg unless people *hated* the traditional methods
2.	sometimes you just gotta do something in a hurry, DT helps but really need that collab input
3.	I could see using the philosophical approach of DT but not the full methodology when you need to work quickly

**Table 15: Design Thinking and speed**

These three tweets, taken from different time points in the chat event, all cite Design Thinking as requiring a lot of time to use. Tweet 1 (Table 15) implies Design Thinking is not appropriate to simple tasks supposedly exemplified in poaching an egg. Such a position aligns with the pre-chat blog post that positions Design Thinking in terms of being an "ability to combine empathy for the context of a problem, creativity in the generation of insights and

solutions". Such abilities are not necessarily required for undertaking simple, known tasks and activities. Tweets 2 and 3 specifically discount using Design Thinking on account of being "in a hurry" or to work quickly. As such, these latter tweets discount concerns with the development of insightful, empathic and creative solutions to a problem-situation over the instrumental concern with generating outputs at speed.

At other points in the chat events the requirement to work at speed was seen as a barrier or impediment to using perceived good practice with negative references to "the just get it done fast approach".

Overall, speed is valued as a positive attribute of good practice as speed is a demand and expectation of organisations, technologies and workers or learners.

Speed is also valued as an aspect of the Twitter chat events themselves. As I argue in the next section of this chapter, the pace of the chat events is inscribed in the structure of the chat events and the functions of Twitter. Furthermore, the performance of 'learning at speed' in the chat events is also enacting a key practice of an idealised HRD.

### Enacting pace in the chat events

The importance of speed is emphasised in the pre-chat blog posts and in the links to 'industry reports' with titles such as "Learning at the Speed of Need" (Kineo, 2013) and is further enacted in the Twitter chat events themselves. For example, as discussed in Chapter 5, the chat events are intense in terms of the rates of activity. The table below (Table 16) displays the mean average tweets per minute for each chat events series for the main sample period of September to December 2013.

	Mean average tweets per minute of all events	Lowest event mean average tweets per minute of a single event	Highest event mean average tweets per minute of a single event
Chat B	8.72	5.77	12.8
Chat A	9.83	7.95	12.12

**Table 16: Mean average tweets per minute**

The intensity of the events was reflected in specific comments from the event participants. Table 17 presents a number of tweets from different chat events that specifically comment on the pace of activity of the events and discuss ways of managing that activity rate:

1.	@joeroads	Boy but [Chat B] is rolling along quickly tonight. Lordy. #1
2.	@psykandsing	dizzy trying to read all these pithy and worthy tweets. #
3.	@LaurenObrien	Alright, since I can't keep up, I'll wrap up:) ... learner on the on eastern seaboard ...
4.	@ksiptentis	@alghannon hi Al, try tweetchat or tweetgrid #
5.	@alghannon	@ksiptentis thanks! Using tweetchat, just trying to keep up. Wow :) #
6.	@LaurenObrien	tweetchat has failed me #
7.	@dan_hamish	@LaurenObrien Tweetchat worked well for me tonight. #

**Table 17: Meta-speed**

Tweets 1 and 2 (Table 17) are meta comments expressing the challenge for participants of the pace of the chat events. The reference in tweet 2 to the effect of the event on that participant as 'dizzying' suggests both the intense activity of the event and the effort exerted by this participant in fully engaging in the event. The term 'pithy' also indicates the brevity of the tweets that contributes to the sense of vigour of the event. This leads to a participant (tweet 3) declaring themselves unable to manage the pace of the event and therefore expressly stating their non-participation. This leads to tweets 4 – 7 that suggest different technological solutions to the problem of pace. The



pace of the event is, at least partially, an effect of its time-bound nature, the scheduling of the formal questions of the event, the number of active participants, the constraints (in character count per tweet) of Twitter and the discursive strategies of participants in eschewing direct conversation. So pace is an effect of the entanglement of sociability, discursive styles and digital technologies. To overcome the limitations of engaging with Twitter in a standard web browser, additional applications such as Tweepchat<sup>25</sup> and Tweetgrid<sup>26</sup> are used. Therefore, participating in the chat events has led to some participants being enrolled into different digital practices.

Discourses of busy-ness in the chat events generate a normative expectation on the behaviours of HRD practitioners. Furthermore, the assemblage of the chat events performs that normative expectation through the pace of the chat event activities. As discussed previously (Chapter 4), the pace of the events is driven by a combination of the posting of original tweets and by retweeting. The performance of pace in the chat events is an outcome of the particular socio-material assemblage of these events involving participant actions and the effects of the technologies of Twitter. The technology effects arise particularly from the mobilisation of the retweet actor-network in generating repeated tweets and the aggregating and networking effects of the hashtag.

The fluidity of the domain of HRD is presented in terms of a deficit whereby HRD often positions itself as failing to react appropriately to an unstoppable wave of continuous change. At the same time, the chat event 'community' identifies itself as performing the sort of practices that would address these

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<sup>25</sup> <http://tweepchat.com/>

<sup>26</sup> As at April 2016, Tweet Grid ([www.tweetgrid.com](http://www.tweetgrid.com)) was not available due to "changes in the Twitter API"

deficits in the wider professional domain and so generate potential new assemblages of HRD.

In their discussion of adult education and HRD Hatcher and Bowles (2006, p.22) cite Coffield (1999) in ascribing to the HRD profession the practice of pre-emptive cringes that seek to avoid challenging more powerful actors. The sense of a defensive and subservient profession is reinforced by examples seen in in the context setting and subsequent discussions in the Capability Map chat as well as in other examples of the chat events. The pre-reading for a different Chat A event on the theme of technology in corporate learning quoted, with approval, a blog post (Overton, 2013) that stated:

*When I think about the future of L&D, I fear that many L&D professionals will be in for a shock! The stark fact is that in all other aspects of business life, technology is completely turning the way we work inside out and upside down. Business leaders are very clear that technology is a key driver, not just an enabler.*

The pre-reading post positioned this sentiment in relation to similar views from other prominent industry commentators (Barden, 2013; Kineo, 2013). As with the Capability Map chat event, intertextual components were assembled to position technology as an irresistible force shaping HRD practices.

This chat event is then initiated as a response to the quote by asking: "What then, do you think about this prediction and, even more importantly, if you agree with it, what impact is it going to have on your job role and all those learners you serve?" The question, and the chat event itself, is framed in terms of this prediction being correct and that the important discussion to be had is in the implications of this 'future of learning' for the event participants and HRD practice in general. This is an example of the technological determinism prevalent in both series of chat events.

The next section of this chapter reviews the key discourses generating these trajectories of potential transformation. These discourses tend to reinforce the notion of HRD as a professional domain dominated by technologies (CIPD, 2015) and also incorporating wider narratives that position HRD as a 'weakened profession' (Short, Keefer and Stone, 2009; Ruona, 2016).

## Technological determinism

In the main sample of Twitter chat events, both event series included an event themed on the role of technology in HRD practice. The Chat B event was on the topic of learning from social media, while the Chat A event took place just over one month later and addressed the theme of whether technology drives learning practices in organisations.

Figure 24 below indicates the structural similarities in the interactions within the two Twitter discussion events. Both event networks are fairly dense with nodes tied to one another. The Chat B event has a clear single hub located in blue at the centre of the network and through which many other nodes are linked. The Chat A event is centred around a smaller sub-cluster of the discussion network that is particularly dense with many ties between participants.

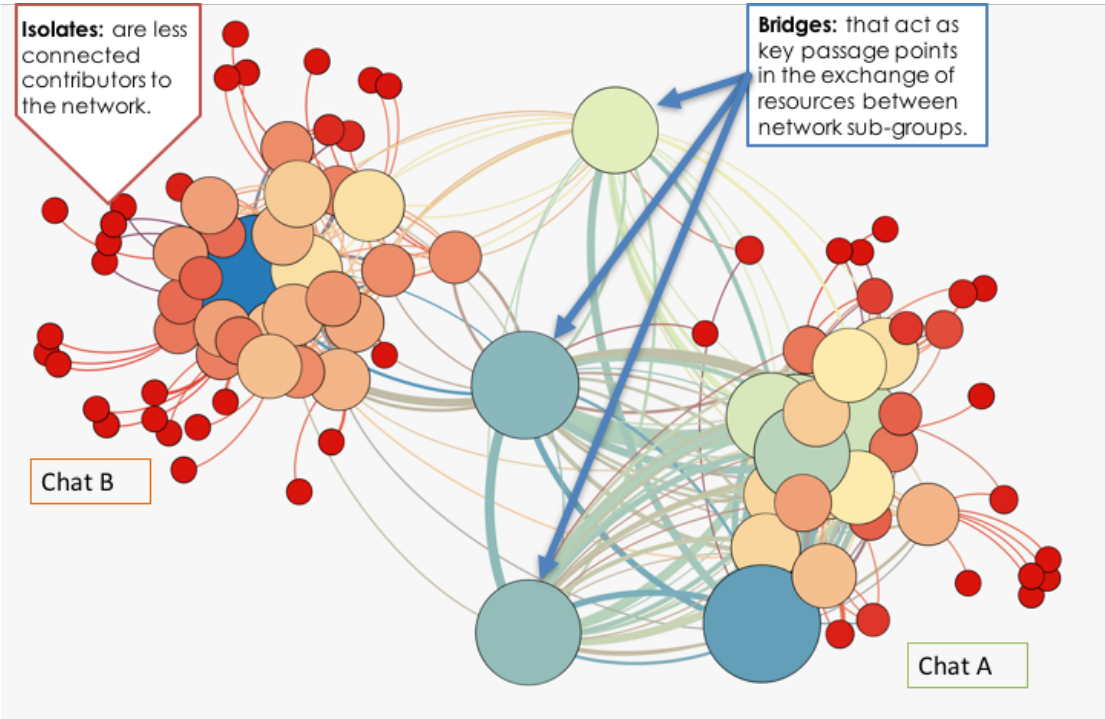


Figure 24: Technology chats

A number of participants were involved in both events. In particular, the sociogram highlights the three key bridging actors who generated strong ties between the two event clusters. The three participants consistently promoted ideas of networked, collaborative and situated learning as important aspects of effective and valuable HRD practices.

More widely, in both of these chat events, digital technologies are presented as irrevocably entangled with HRD practice. Often, digital technologies are discussed in positive terms in respect of enhancing the professional and developmental activities of this group of practitioners:

1.	No matter how you slice it, technology has made my learning faster, more frequent, and more effective
2.	Webinar tools have helped us reach more people, and as they evolve the conversations get better
3.	When new technology becomes available, it opens new doors of possibilities
4.	As a learner... can I have more tech, please? #

Table 18: My own learning

In Table 18, tweet 1 asserts the benefits of technology for this person's learning. The statement: "No matter how you slice it" makes it clear that this participant cannot perceive of any evidence or argument that would negate that positive assertion. Tweet 4 can be seen to be in alignment with tweet 1 in the implication that technology is beneficial to learning and so suggests that more technology must be a benefit leading to more learning. Tweet 2 gives a specific example of the benefits of a particular technology and its effects in reaching more people. The reference here to conversations suggests the importance of sociability in online digital learning and that the effectiveness of webinars occurs through the social learning rather than instructional models based on the transmission of content. Thus 'more people' can be understood in terms of not simply 'broadcast reach' but rather as pedagogically beneficial (Owen, 2014). Meanwhile tweet 3 suggests that HRD practices are shaped by technological changes as new practices emerge through the development of new technologies.

The entanglement between HRD practices and digital technologies is frequently presented in terms of a technological determinism. Technological determinism positions technological change as 'the' driving force of social change (Potts, 2008). Technological determinism has been subject to numerous critiques to reassert the importance of the social, often to the extent that it formulates a social determinism instead (Potts, 2008). Technological or social determinism both suffer the reductionism and simplification that Latour (2005) and Law (2003) seek to avoid in their arguments for actor-network and (After ANT) assemblage theory, where the social and material emerge from complex intra-actional relations. Technology is not simply embedded in notions of 'good' or effective professional practice but is, rather, presented as an active agent in the development of practice. The following

tweets from one chat event suggests different ways in which technology has shaped HRD practices.

1.	Tech is where we push out and do new things and at speed. In that sense it should bring innovation to all we do #
2.	Tech will change how L&D works, whether we like it or not...
3.	Gotta stay ahead of the wave. TGFC (Thanks god for Chat A)
4.	Tech enables learning to become a practice of networking, rather than unidirectional instruction #
5.	Think social element of tech has been game changer for communication, doing things + therefore lrng #
6.	Tech shld drive learning so that we take advantage of it & shape how we want it to be to make the best lrng events
7.	For me, tech injects fun. Making learning fun is the best kind of learning I want to create and digest.
8.	technology can take learning out of formal, abstract classroom & into real world of learner, where it counts
9.	socially collaborative technology will hugely impact on the rise of #SocialLearning and #leadership <a href="http://t.co/L7bSnZcQXm">http://t.co/L7bSnZcQXm</a>

**Table 19: Technology shaping HRD practice**

Tweet 1 (Table 19) provides a clear example of the assumed causal relationship between technology and innovation: that technology ‘naturally’ leads to innovation in professional practice. Similarly, tweet 7 asserts that technology makes learning ‘fun’ and that ‘fun’ learning is more effective learning. The notion of technology shaping professional practice is also asserted in tweet 2 where the HRD profession is rendered passive while agency resides with the technology in changing “how L&D works”. Tweet 5 also presents technological change as part of the context of HRD professional practice that has inevitably changed how learning takes place. While tweet 3 also positions technology as a natural force and the role of the practitioner is to keep abreast of technological change so, again, technology is forcing changes in professional practice.

The perception of the irresistible nature of ‘technological change’ is enhanced by the brevity of each tweet to fit within the 140-character limit. So, rather

than specific examples of technology changing practices, vague terms such as 'waves', 'game changers' and 'shaping' are employed. Thus the discursive style used undermines any sense of practitioner agency and reinforces the assumption that the professional domain is necessarily subservient to technological change. Such discourses suggest a trajectory towards an essentialist perspective on technologies for learning (Hamilton and Friesen, 2013). Essentialism, according to Hamilton and Friesen, is where technology is taken to embody a specific pedagogical principle such that the technological actor replaces the ideational actor of the original principle. In the case of the chat event discourses, technology is positioned as embodying effective and innovative professional practice.

However, other tweets in Table 19 suggest a more interactive relationship between technology and practice. Tweet 6 suggests a hedging of the relationship between HRD practice and technology. Here, technology drives learning in a way that allows for the design of better 'learning events'. Tweet 6 still privileges HRD as an event (a course, a workshop)-led practice in contrast to other tweets in Table 19 (tweets 4, 8 and 9) which discuss technology as enabling beneficial changes in professional practice. Here technology and its effects are presented as solutions to weaknesses in 'traditional' HRD practices. Hence technology enables network, situated and social learning as a solution to the 'problem' of classroom training or broadcast instruction as discussed earlier.

While the discourses of technological determinism are repeatedly mobilised in the course of the different Twitter chat events, the alternative discourse that emphasised professional skills and judgement over technological solutions was also a common feature of the chat events. Table 20 is an excerpt of tweets from the same event as Table 19, made in response to a question on

identifying the advantages of having technology drive learning practices

(Q4):

1.	Q4) Tech can speed the adoption of knowledge. If tech doesn't make it easier for ppl to learn, it's just a noisemaker
2.	Advances in technology require constant vigilance of our own learning, to say nothing of that for our audiences.
3.	keep on top of new tech - remember human element - adapt, adapt, adapt :)
4.	We've become better connected because of technology. How can we kick that up a notch?
5.	Q4 High expectations that the technology will deliver for us is a def con! it's what we do with it that matters
6.	I have to promote tech for learning AND reign in ridiculous tech plans at the same time.
7.	People are looking for the clicky-clicky-bling-bling to impress others instead of solving problems.

**Table 20: People and technology**

Table 20 presents a number of tweets that counter the discursive resources of technological determinism. Tweet 1 is a general comment on the position of technology in learning as secondary to the processes of learning. Tweet 2 positions technology as being a service to the learning activities of the HRD practitioner but also that the use of technologies should be based on what learners are ready or able to use for their learning (Greener, 2008). Tweet 2 also suggests that the HRD practitioners will be more advanced in their use of technology for learning than the learners would be. This is a common refrain in the chat events although there is a consistent discourse of HRD practitioners lagging behind the demands of 'their learners'. These two tweets suggest a perspective on technology that mirrors Hamilton and Friesen's (2013) notions of instrumentalism in their conceptual discussion of online education. Thus technology is a passive and neutral tool of HRD practitioners to be assessed on the extent to which it accomplishes the intentions of those practitioners and the end-user learners. Such a position ignores the active role of technology in shaping situated practices, and contingent practices shaping the functional effects of technologies.



Tweets 3 to 5 assert the importance of professional judgement and practices that make the most effective use of technologies for learning. In contrast to tweets in Table 19, here we see the argument for the passivation of technology, and agency being ascribed to the HRD practitioner. It is the HRD professional who must adapt technology to the needs of the (human) learners; she/he is the one who will make better use of network connectivities and do things that 'matter' with the technology. Tweet 6 suggests the practitioner is caught in a tension between their role of promoting technology for learning while also resisting the technology plans of their organisation and its management. Additionally, from the same participant, comes the warning of not being seduced by the need for the latest and best technology but rather the HRD practitioner should be focused on the best solution to a problem or issue.

This focus on solutions was also manifested in a discursive style commonly mobilised in the chat events that I have termed 'instructional talk'. Instructional talk, with its emphasis on 'what' should be done and what knowledge is required, is presented as a weak professionalism that demotes questions of "how a Professional *can* practise" (Gold and Bratton, 2014, p.401, *emphasis added*) against descriptions of how professionals currently *do* practice. So the emphasis is placed by HRD practitioners on following established practices within any given organisation rather than on challenging those practices. In these chat events, certain established HRD practices are challenged and alternative practices are promoted. Yet, the sort of reflexive critique advocated by Gold and Bratton (2014, p.402) is absent.

1.	Reblog others to keep your readers engaged and learning.
2.	Answered some questions, than followup, more ques, more answ, not very formal
3.	A1 a #designthinking empathy map is really good and bringing culture to the fore. People will thank you for seeing it in them.
4.	Talk to people most impacted by the problem

**Table 21 Instructional talk**

Table 21 shows a series of tweets that assert particular activities to facilitate online discussion (tweets 1 and 2) or face-to-face workshops (tweet 3) or to diagnose problems (tweet 4). Within this example of instructional talk can be seen the mobilisation of specific practices of questioning learners: either in the mode of question and response (tweet 2) or more general consultations (tweet 4); or in mobilisation of particular technologies such as a blog (tweet 1) or tools such as an empathy map (tweet 3)<sup>27</sup>.

Overall, the chat events mobilise a discursive repertoire that identifies learning professionals and practices as facing the challenge of being relevant, and that technology is the main means of addressing that challenge. Yet as previously discussed, the need for, and the pace of, change in professional practices is driven by technology. So the professional domain of HRD is subordinated to technological change that drives the emergence of existential challenges to the profession while simultaneously offering a, or 'the', solution to those challenges. This is problematic because the potential directions for development of the profession that are not subordinate to technological change are suppressed. The development of the HRD profession is constrained within boundaries of assemblages of digital technologies. Yet,

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<sup>27</sup> An empathy map is a tool used in user-experience (UX) design to gain insight into user groups. The tool was initially developed by the graphic designer Dave Gray.

within the constraints of this subordination to the digital emerge competing pessimistic and optimistic (Fuchs, 2012, p.387) trajectories for the development of the profession.

## Us and them

All the chat events adopted particular discursive styles that mobilise the chat events as components of a common professional endeavour. In discussing both the profession as being in deficit and in discussing exemplary HRD practice, the participants regularly used pronouns of ‘we’ and ‘us’.

1.	Tech shld drive learning so that we take advantage of it & shape how we want it to be to make for best lrng events #
2.	A1 w/out tech many of us wouldn't have met. Imagine what it could/would do for our learners.
3.	Rapid development tools help us get information out there faster in and out of the corporate world.
4.	It pushes us to think about the learner...something often forgotten
5.	If we don't *borrow* from other domains we will suffer from inbred ideas. #
6.	Q2) Learning design and development is not something separate from other domains of design. We forget that sometimes.
7.	Q2)...design is often ignored. We push trng that sm1 thinks we need instead of understanding real problem #

**Table 22: Group identity**

A common discursive position adopted in both series of the Twitter chat events was to identify the participants as a distinct group differentiated from various ‘others’ (Table 22). Tweets 1 and 4 situate the participants (‘we’) in the common endeavour of delivering learning events while tweet 2 indicates the chat event participants to be distinct from the genericised ‘learner’ that they claim possession over (Van Leeuwen, 2008). Tweet 3 provides an acknowledgement of professional activities distinct from the employing organisation, ‘the corporate’, with the expectation that information is passed through networks outside any particular institution. Tweets 5 and 6 indicate

that the participants value the porous nature of the boundary of the HRD professional domain. This may be expressed in terms of bringing in useful knowledge and practices from other domains of practice (tweet 6) or acknowledging the broader overlap with other professional domains. Collaborative working is often presented as a positive component of effective HRD practice. The discussion promotes the notion of others contributing to better professional practices, yet at the same time these others are discursively distanced through genericisation (Van Leeuwen, 2008). Genericisation presents social actors as removed from their specific and concrete situation to be positioned as general, amorphous categories of actors and so acts to suppress the importance of those actors (Van Leeuwen, 2008).

Finally, a further 'other' is identified in tweet 7 as an actor who in some way forces HRD practitioners to adopt practices that the professional practitioners know to be problematic. In particular, the generic 'manager' was used negatively on a regular basis as general group of actors who do not work with the preferred practices of the event participants. A sequence in an earlier chat event was initiated by the comment that "learning is not a metric that businesses care about: positive performance change is". This tweet generated a number of responses regarding the relationship between people in an organisation, an organisation and the aims and objectives of a 'business' that culminated in the following exchange:

1.	@ksiptentis	Learning not a metric that businesses care about: positive performance change is
2.	@kbarlow	@ksiptentis F*ck business – if all the people walk out, there is no business – measure that
3.	@ksiptentis	@kbarlowWow, I haven't used those words with my clients before, refreshing candor
4.	@kbarlow	@ksiptentisit's a fact – no people, no business – becomes a problem when people are no longer interchangeable
5.	@ksiptentis	@kbarlowRoger that.

**Table 23: Business and people**

The sequence in Table 23 is a vociferous assertion of the value of a humanist and learning orientated perspective on the domain of HRD. This position is at odds with the performance-orientated preferences of much of the discourse in the chat events as the participants position 'business' as subservient to the individuals working in it. This reversal of the dominant discourse of the subservience to business of HRD in the chat events generates an uncertainty in the responses and the sequence closes at tweet 5.

Dominant discourses may be mobilised as a means of territorialising the chat event assemblage. HRD practitioners who resist technological change, who do not adopt social media technologies in their HRD practices are identified negatively compared to the chat event participants and their use of Twitter or other social media technologies. Particular well-established HRD practices may be identified as illegitimate within the context of the specific practitioner communities of these events. So the mention of the popular Kirkpatrick model of training evaluation generated the response of "can we have another question to keep us from wasting time burying Kirkpatrick?". Mentions of Kirkpatrick were also dismissed through reference to a drinking game: "For tonight new drinking 'terms' Kirkpatrick and Level (any)". The 'game' here is based on 'buzzword bingo'<sup>28</sup> that at the mention of this model of training evaluation, the participants should (actually or metaphorically) drink some alcohol. The effect of the game is to treat this particular model as useless as a means of evaluating training while highlighting its continued popularity among the sort of HRD practitioners that these chat events position as increasingly irrelevant in contemporary business 'realities'. At another chat

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<sup>28</sup> <http://www.bullshitbingo.net/cards/buzzword/>

event, this drinking game was referred to as a “secret glue” of the event community: the ‘game’ acts as an in-group marker while othering those HRD practitioners that continue to use the Kirkpatrick model.

The processes of territorialisation of the chat event assemblage and of the domain of HRD tended towards ‘restrictive’ positions of what are not acceptable or legitimate practices. However, the chat events themselves were regularly discussed as being how HRD practices should be: that the participants were performing HRD as, to use Gold and Bratton’s (2014) term, *how* it should be practised. I expand on this notion of coherence and community in Chapter 7.

The effect of the cumulative talk (see Chapter 4, the section: ‘Content analysis’) of the Twitter chat events is to define HRD through dynamic assemblages of both restrictive and expansive discursive stances. The discursive and technological entanglement of the events avoids attempts to reconcile different positions or to engage in deeper reflection and dialogue on more complex issues. The discussions unfold in such a way that a single coherent definition of the professional domain is not achieved. Rather the events achieve a hologram effect gathering together, but not reconciling, the diversity of actual and potential practices of HRD.

## Conclusion: performing a better HRD

The chat events idealise the notion of the autonomous, self-programmable (Castells, 2000a) and self-directed learner working and learning smoothly across diverse and complex networked contexts (Ribiere and Tuggle, 2010; Tams and Arthur, 2010; Donnelly, 2011; Scholz, 2013; Swart and Kinnie,

2014). The privileging of self-directed professional learning and the interaction of learning and working was positioned as a positive response to changes in the labour market and wider economy.

Entangled with this idealised workforce is a privileging of social technologies as enabling and performing the idealised open, visible, fluid and non-hierarchical professional learning networks (Sie, Bitter-Rijkema and Sloep, 2009) exemplified by Twitter chat events themselves. As will be discussed in the Chapter 8, social media technologies and the Twitter chat events are positioned as enactments of ideal professional learning that provides immediate, bite-size and visible learning.

HRD activities are framed exclusively in terms of the 'needs' of the organisation to constantly improve performance while individual learning and development, career planning and advancement or a concern with the employability of individuals are the responsibilities of those individuals not the HRD function. One participant in the Capability Map chat tweeted a link to a blog post (Hart, 2012) that stated (emphasis as in the original):

*But things have changed; there is no longer such a thing as a job for life, and nowadays when you work for an organization they are only likely to provide you with the minimum training you require to get started and carry out your basic duties, together with all the necessary regulatory/compliance/statutory/ mandatory training they are obliged to provide **to keep their CEO out of jail!** If you are very lucky they might pay for you to attend a professional conference once a year....*

Participation in the chat events involves performing two distinct framings of HRD practices. The chat events generate a dominant discourse privileging organisational performance above personal development. At the same time,

participation in the chat events performs the practices of HRD that support and provide opportunities for informal, social and self-directed learning.

Therefore, the chat events enact different assemblages of HRD as a domain of practice. The chat events are where the challenges of developing and nurturing new ways of practicing HRD are discussed and examined as well as performed. In this way, potential trajectories initiating alternative realities of HRD can emerge. So rather than enacting a singular professional domain that has multiple facets, as suggested in the hologram metaphor (McGoldrick, Stewart and Watson, 2001), the chat events generate a multitude of realities of the professional domain that are temporary, precarious, contested and contingent as well as stable, consensual and recurring within the assemblages of the chat events. As discussed earlier in this chapter, these multiple realities of HRD emerge in contestation with an othered HRD practice that is singular, homogenous and impoverished.

The chat events are framed by the intra-action of professional learning and technology. It is technological change that underpins the knowledge economy and the retranslation of the relationship between the employer and the employees and the role and responsibilities for learning within that relationship. It is technological change that generates changing possibilities for HRD practices in terms of situated, work-based, informal and networked learning and performance support. It is technological change that drives continual organisational change and drives the need to work at speed. It is also through digital technologies that new HRD practices as performed in the Twitter chat events are possible. But the chat events also raise questions on the professional status of HRD. For example, if the self-programmable knowledge worker is the dominant employee model, and employer-provided



learning is compliance orientated only, then what is the role and value of HRD as a professional domain?

In the dominant framing of HRD in the chat events, HRD becomes a practice that can, and should, be performed by anyone. The notion of a bounded and distinct professional domain is broken down and HRD becomes an ever-changing bundle of socio-material practices associated with learning. The HRD practitioner no longer possesses a distinct identity in terms of their professional practices territorialised by a particular professional domain. Rather, the trajectories of learning practices involving digital technologies generate other fluid and diverse network-assemblages.

In the next chapter, I examine the Twitter chat events in terms of the generation of online communities as a response to the erosion of professional identities identified in this chapter.

# Chapter 7: Communities

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## Introduction and overview

In this chapter, I explore and problematise alternative enactments of online communities within the Twitter chat event assemblages. These different enactments of community are highlighted by the different research methods used in this study. I mobilise the methods-mix of my research to explore and critique both the notion of community and the processes of community formation and maintenance in an open online digital environment. By using and integrating different research methods I argue that the assemblages of the chat events are structurally robust manifestations of online community yet at the same time are riven with fragility and are dependent on the material operations of the Twitter platform.

A number of academic papers have framed the Twitter chat events as examples of online communities (Gruzd and Haythornthwaite, 2013; Ford, Veletsianos and Resta, 2014; Megele, 2014; Ferguson and Wheat, 2015) as have a number of practitioner-focused reports and articles (McCulloch, McIntosh and Barrett, 2011; Paul Signorelli & Associates, 2013; Carpenter and Krutka, 2014). Twitter chat events are often described in terms of being a community by the organisers of these events and by their participants. As discussed in Chapter 6 (see the section: 'Us and them'), the territorialisation of the professional domain of HRD is partially achieved by positioning event participants as distinctive members enacting an idealised professional identity and practices.

In examining the Twitter chat events as assembling online communities, I use a number of analytical lenses to examine the data from the chat events. The initial analysis in this chapter uses a structural lens to examine the notion of online community principally using Social Network Analysis. This analysis describes the structural dimensions of the chat event 'communities' that provide a clear territorialisation of the network-assemblages while also obscuring the fragility of many of the ties that generate that network. I present different structural perspectives that show processes of territorialisation and destabilisation of the network assemblage occurring simultaneously.

A second thread of analysis draws on the discursive structures, styles and genres mobilised in the chat events. I argue that a sense of community is an outcome of particular orders of discourse (Fairclough, 2003) in two main ways. Firstly, discursive structures of genre and style emerge through both direct repetition and novel re-presentation of specific tweets and broader positional stances in the events. In particular, the effects of cumulative talk (Mercer, 2004) mobilising repetitions of keywords and collocates, images and user-mentions, generate multiple possible trajectories of the discussions. As a result, discursive struggles occur through competitive accumulation of discursive resources supporting particular positional stances rather than by direct disputation. These discursive struggles and multiple possible trajectories are framed in terms of 'reassembling' responses to the dominant discourses of the knowledge economy, speed and technological determinism.

Secondly, building on the notion of 'otherness' identified in Chapter 6, the events involve the use of diectic markers to mobilise a sense of an immediate shared proximal space and enact both in-group presence and out-group 'otherness'. I argue that through processes of 'othering', the chat events

assemble multiple 'non-coherent' realities (Law, 2004) at a granular level without destroying a wider sense of community. Thus the sense of a coherent discourse community is found in the communicative structures of the aggregated tweets while fragmentation, disorder and fluidity continue at the granular scale (Wilkie, Michael and Plummer-Fernandez, 2015).

## Structuring community

I initially examine the enactment of online community in the chat events using a structural perspective through Social Network Analysis (SNA). Through this lens, online communities emerge as the product of linkages or ties between actors within a network. As noted previously, much of the existing research on communities on Twitter privileges 'hard data' research approaches such as SNA that define community in structural terms identified through particular algorithmic measures of visible ties between actors (Kozinets, 2010; Rieder, 2012; Gruzd and Haythornthwaite, 2013; Borondo *et al.*, 2014)). By using multiple grids of analysis (Nespor, 1994) that include SNA, my approach investigates both the structure of online communities *and* the processes that achieve the sociability and shared meanings associated with community (Stephansen and Couldry, 2014). Through the interdisciplinary methods mix I am able to assemble a more rounded and complex understanding of the online communities.

As I discussed in Chapter 5 (see the section: 'Social Network Analysis'), both Chat A and Chat B, over the period that the data was collected, can be perceived as 'tight crowds' (Smith *et al.*, 2014). At the same time, such communities have strong and active connections, including robust bridges between sub-clusters as indicated by the high level of sharing between groups in each network. Tight crowds are said to "share a common interest

and a common orientation and have few isolates within the network" (Smith *et al.*, 2014, p.21). In both chat event communities a core group of regular participants are identified as tightly bound sub-communities that form within and between the different events. These sub-communities are generated through the particular functions of Twitter associated with addressivity (Honeycutt and Herring, 2009), i.e. user mentions generated by replies and especially retweeting (boyd, Golder and Lotan, 2010). These functions create the trace data of network ties as a by-product of the intended activity of the chat events (Howison, Wiggins and Crowston, 2010).

Thus, the 'community' in these Twitter chat events appear to reflect DeLanda's argument (2010, p.4) that communities are an example of an assemblage where:

*"...an important emergent property is the degree to which their members are linked together. One way of examining this property is to study networks of relations, counting the number of direct and indirect links per person, and studying their connectivity. A crucial property of these networks is their density ..."*

However, further examination of the tight-knit groupings surfaces a range of complexities in understanding the emergent proprieties of the chat events which are not accounted for in "counting the number of direct and indirect links" (DeLanda, 2010, p.4). As discussed below, these include issues of what is and is not a link, and so what denotes membership of a 'community', as well as the diverse properties and effects of different links. Hence the ordering effects of visualisations such as the sociograms in Figure 27 (page 253) below, hide the dynamic complexities of the structures of the network assemblages exposed amongst disaggregated data.

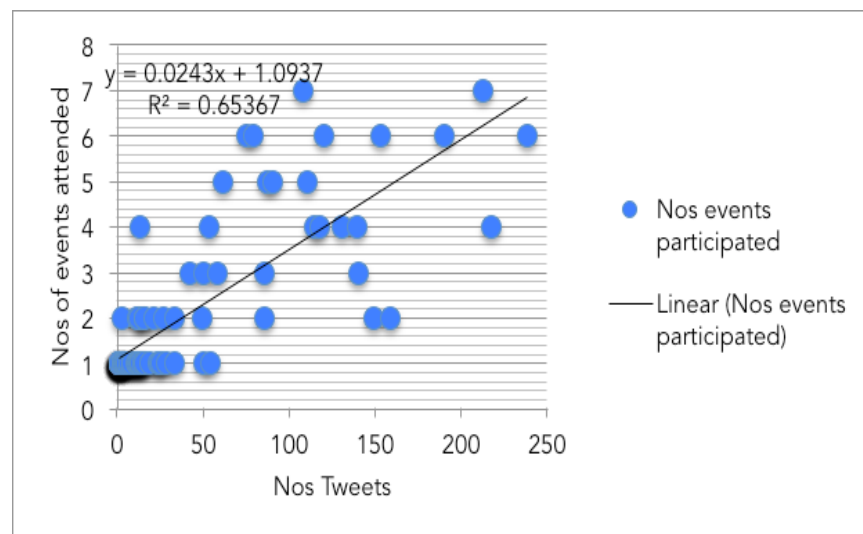
## Hashtags and peripheries

The hashtag is regularly cited as a key function in the formation of ad hoc gatherings on Twitter based on a specific topic of interest or event. The hashtag invites open participation beyond the constraints of the following/follower relationship (Small, 2011; Purohit *et al.*, 2013; Sloep, 2014). By including a particular hashtag in a tweet the hashtag performs the role of a signifier that the tweet content is relevant to the topic of interest (Reichert-Smith and Smith, 2012). The chat event hashtags are the key signifier of a tweet contributing to the chat event. It frames the tweet itself and the user's Twitter name as actors in the chat event community. However, the analysis presented here problematises the notion of the hashtag community on Twitter (Loureiro-Koechlin and Butcher, 2013; Reed, 2013) in terms of the membership of online communities, and of the hashtag as a signifier of the relevance of the tweet content.

Figure 25 and Figure 26 below indicate a difference in commitment to the chat events between the two series. In Chat A, from a total of 105 unique participants, 73 contributed more than one tweet and 76 attended more than a single event over the sample period. Chat A, therefore, is able to attract a high number of regular participants. For Chat B, 98 participants contributed just a single tweet over the same four-month sample period from a total of 306 participants. Furthermore, only 92 participants joined more than one event over that same period. So Chat B has a high number of participants who attend the chat events very rarely and is dependent on a few participants who attend the most events and contribute the most tweets.

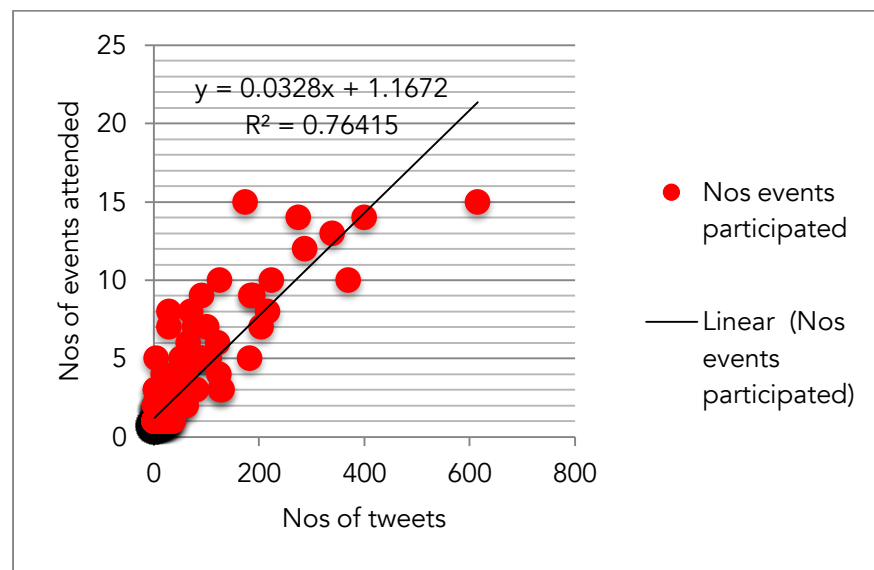
Figures 25 and 26 show the correlations between the number of events attended and the number of tweets posted across each chat event series. Chat

A (Figure 25), has more participants attending a greater number of chat events as indicated by the spread of data points across the chart. Chat A is less dependent on a proportionally small number of regular participants that Chat B (Figure 26). The R squared value of 0.65 indicates that 65% of the variation in the number of tweets by each participant can be explained by the number of events attended by that participant.



**Figure 25: Chat A participant activity by events attended**

It should be noted that in Figure 25, I excluded a significant outlier of a single participant responsible for 460 tweets posted over five events. The next most active participant posted 238 tweets over six events. Including this outlier generates an R square value of 0.55 suggesting that excluding this outlier participant from this calculation arguably gives a more robust indication of the relationship between activity intensity and the number of events attended in the Chat A community. The significant impact of this one outlier participant on the R square value further indicates their potential visibility and significance in the Chat A events. This indicates the volatility of the chat events and the precariousness of the patterns of orders identified in my analysis.



**Figure 26: Chat B participant activity by events attended**

With the higher R squared result, Chat B (Figure 26) can be seen to be dependent on a smaller number of regular and committed participants to the chat events. In the Chat B events the variation in the number of tweets is more strongly associated with the number of events attended than in Chat A. So Chat B depends on its regular participants to keep the events active. This may indicate that Chat A has attracted a stronger commitment from participants and a stronger sense of belonging (Dann, 2010; Koutropoulos *et al.*, 2014). Chat B may attract a great proportion of participants who are interested in a specific chat topic only rather than a broader perceived sense of community. So DeLanda's (2010) structural bias in identifying assemblages and communities seems too reductionist and suppresses the heterogeneous dynamics of linkages and network ties generated within these Twitter chat events.

The remainder of this section investigates further the dynamics of the generation of the structural perspective of community (Panagiotopoulos and Sams, 2012; Rieder, 2012; Borondo *et al.*, 2014) in these chat events.

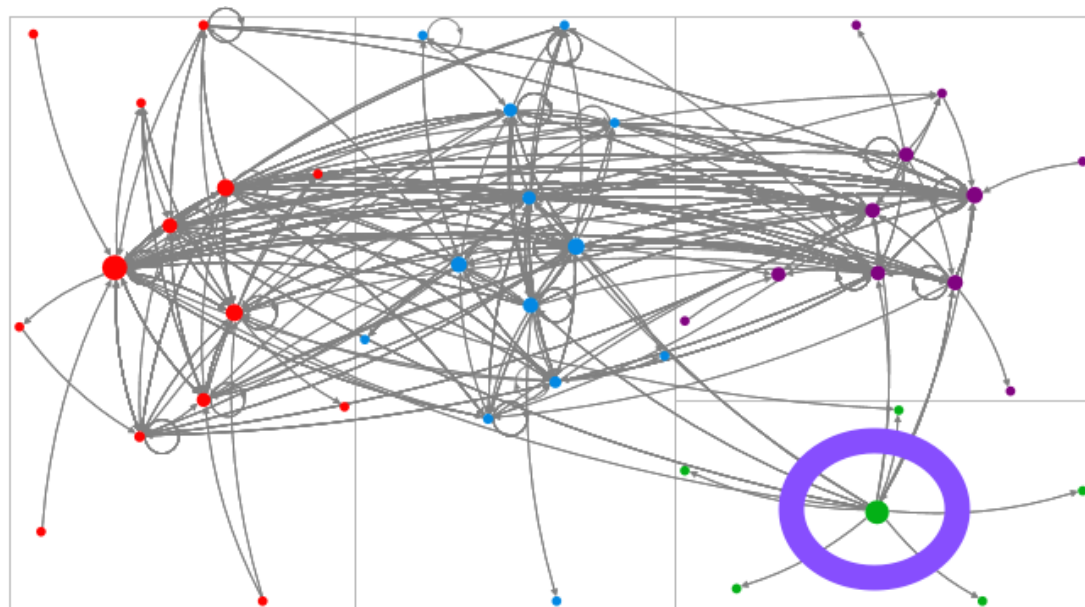


While the specific event hashtags are requirements for any tweet to be included in the chat events, tweets may also include other hashtags. Over the three months of data collection, the Chat A events included 50 other unique hashtags while Chat B had 279 unique other hashtags. These other hashtags related to relevant events such as conferences, to other Twitter chat events, to specific topics and tools, to emphasise a point in the tweet or to present an affective component to the tweets, for example, “#sadface”.

The greater number of alternative hashtags in the Chat B events may indicate an established norm of using additional hashtags but also it indicates the wider and more diverse pool of participants in these events. Participants in Chat B may be more likely to span multiple network-assemblages on the periphery of any single network but forming their own networks of association and a wider professional field of interest. While for Chat A, this particular chat event may be more closely entwined with the professional identities of the participants that, in turn, generates a greater commitment to regular attendance at the events as performances of that identity.

It is also clear from these figures and the Social Network Analysis that both Twitter chat events attract a number of peripheral participants: those who participate in a single event possibly contributing as little as a single tweet. Such peripheral participation has been framed in other studies in terms of Legitimate Peripheral Participation (LPP) (Gruzd and Haythornthwaite, 2013) with participants shifting their position within the network structure from the periphery to the core. It is this process of LPP that is an important component of the concept of Communities of Practice as sites of individual development and learning (Lave and Wenger, 1991). Yet, there is no evidence of this occurring in these chat events. While peripheral participants are included in

the social network of the chat events, the claim that they may be part of a ‘community’ is harder to sustain. Within a single event a participant may contribute only one tweet, yet elsewhere in the series contribute many tweets and so could claim to be an active member of the community. Alternatively, a single contribution can come from a participant who was, some two years ago, a very active member of the chat community. This suggests that there is not a common trajectory of participation from the periphery to the core of the community. Therefore, the framing of the chat events as Communities of Practice (McCulloch, McIntosh and Barrett, 2011; Megele, 2014) appears to be inadequate.



Created with NodeXL (<http://nodexl.codeplex.com>)

**Figure 27: Chat A structure and sub-cluster**

Structural problems in understanding peripherality in the hashtag community are surfaced in the example of a single Chat A event. As can be seen in Figure 27, there is a tightly knit central core of the network and a periphery of participants with very few or single ties to other nodes. While there are no isolates from this chat event there is a clear periphery of ‘participants’ with single ties to and from other actors. This periphery

generates a problematising of the assumption that we can explain online community in structural terms.

The purple-circled participant in Figure 27 holds an influential position by linking to a number of peripheral nodes to form an identifiable sub-cluster, and by linking that sub-cluster to the main core of the network of this event. These ties that draw in the peripheral participants to the event are generated in a tweet response to an initiating question from the event account: *“How is technology driven learning going to impact your job?”*. In response, this participant tweets: *“If you look at @odesk<sup>29</sup> @innocentive<sup>30</sup> and @37signals<sup>31</sup> work models then tech may be central part of jobs in the future”*. These three Twitter accounts are all corporate accounts and are used here to illustrate a point on the future of work. There is no suggestion in the tweet that these are members of the Chat A ‘community’ yet, through TweetArchivist and the Social Network Analysis software, they are included or conscripted as nodes in the network community and produce the effects of a sub-cluster through this single participant.

As an obligatory passage point for inclusion to these Twitter chat events, the hashtag should be expected to provide a sharp territorialisation of a chat event network-assemblage as a marker of group membership and of content coherence. Yet what is seen in the Twitter chat events is a fluidity and uncertainty around the boundaries of the chat event assemblages (Law, 2004). The hashtag is both a necessary component for inclusion in the chat events

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<sup>29</sup> ODesk became UpWork in May 2015 continuing its business as a market place matching freelancers to work opportunities.

<sup>30</sup> @innoCentive is a crowdsource innovation organisation

<sup>31</sup> A software company rebranded after its most successful product, BaseCamp.

but also can be automatically and unintentionally mobilised through, for example, the use of the retweet function of Twitter. The hashtag may act to enrol other actors in an attempt to project a particular discursive position as being aligned with a wider, more stable and more durable network. The hashtag may also be used accidentally as a tweet is reused from the chat event assemblage to the assemblage of a Twitter users' followers/following assemblage. For example, a tweet from an event participant is retweeted by one of that participants' followers without a concern for the chat event or its hashtag. So the effects of the hashtag as a signifier of inclusion in the chat event are diminished.

The hashtag function not only acts as a data aggregator (Jones, 2014) but also performs the role of data creator. This creation role is both the product of the method assemblage that emerged in the course of this research study and of the entanglement of Twitter functional platforms and human behaviours. The hashtag is not a passive signifier but rather acts as a virtual attractor of disparate, and potentially unaware, actors temporarily into network-assemblages. The Twitter function of the hashtag inscribes a particular context to a tweet and gives a particular translation to the meaning of the tweet. This act of translation then generates the capability to enable the enrolment of that user's networks into the specific chat event assemblage. The hashtag function generates potential trajectories of gathering that territorialise the chat events while also opening up new lines of flight by drawing in to the chat event assemblage other, alternative, assemblages associated with particular Twitter users.

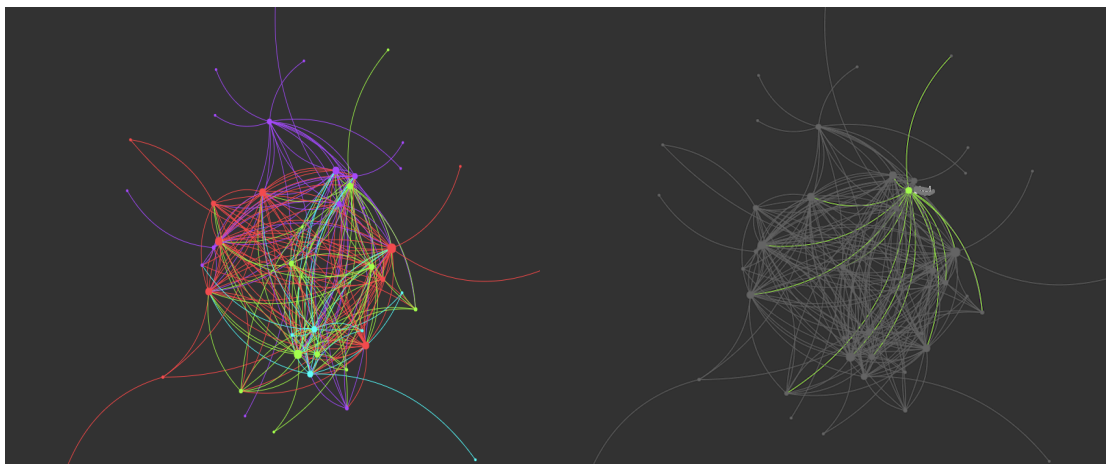
The hashtag acts as an ordering device that bounds or demarcates the mess of specific interactions between participants, texts, resources and technologies.

But these ordering effects of the hashtag assemblage in these chat events are partial, contingent and transient.

## Ties and influence

As noted previously, a key feature of online communities is in establishing and maintaining particular norms of conduct (Glezakos and Lazakidou, 2012) and reciprocity (Ridings and Gefen, 2004). An approach to identifying the emergence of these effects of community is to seek to identify influential participants and activity rates that may act as markers of influence.

However, using activity metrics and participation rates may not be enough in terms of understanding the influence of and the sense of belonging from a single participant. Figure 28 presents a sociogram of the interactions within a single chat event on the left and the traces of links from a single participant, @pyej, on the right.



**Figure 28: Network influence**

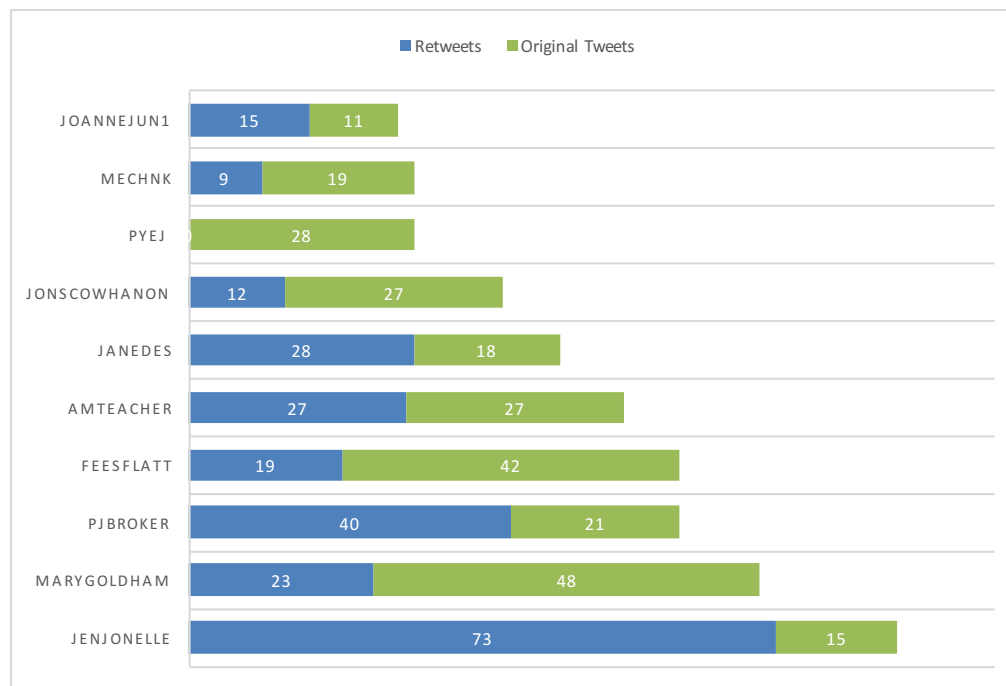
The different participant sub-clusters generated through interactions during the event are indicated by the different coloured nodes in the sociogram on the left. @pyej can be seen as being influential here as her tweets link across

all the main sub-clusters of the chat event. Hence @pyej acts as a coordinator (Jordan, 2016) that generates links between members of a community. This linking function is generated through a combination of direct addressivity by @pyej or the retweeting of @pyej's tweets. @pyej did not generate a network tie in this event by retweeting the tweets of others.

Despite the example of @ pyej, retweeting is an important component of the chat events. Of the 7847 tweets generated in the Chat B events, 29% were retweets while Chat A generated 44% retweets from the 4217 tweets posted over the sample period. While the Chat A showed little variation in the rate of retweeting between events, for the Chat B events the percentages of retweets ranged from 19% to 38%.

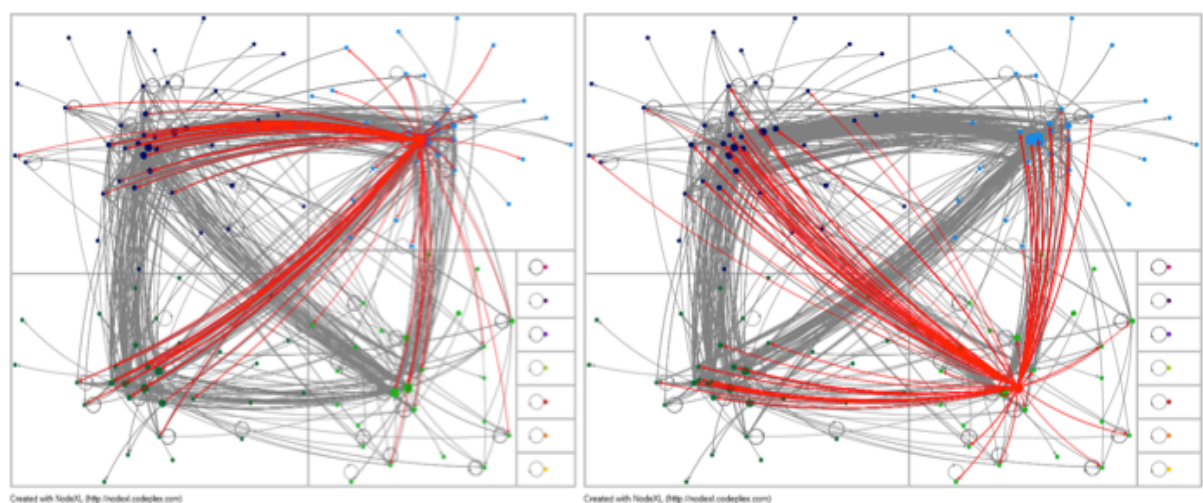
The different rates of original tweets to retweets reflects different participant strategies depending on the topic of the event. For example, the Chat A event on design-based approaches to learning and development had a retweet rate of 46% against a mean average for that event series of 30.1%. The higher rate of retweets may reflect the information-exchange nature of the event, as participants used retweets as a means of 'capturing' useful resources to be picked up later from their personal timeline as well as a means of disseminating such resources to the individual's wider personal Twitter follower network. In such instances, the chat events perform as a market platform enabling the matching between information seekers and information providers (Wellman *et al.*, 1996).

Despite the apparent stability of the Chat A retweeting, a wide diversity of discursive strategies by participants can be seen in any single event. Figure 29 shows the breakdown of the number of original tweets to the number of retweets of the ten most active participants in a single Chat A event.



**Figure 29: Chat A tweets and retweets**

The most active participant in the event, @jenjonelle, adopted retweeting as her principal discursive strategy with 83% of her contributions to the event being retweets. In contrast, the next most active participant, @MaryGoldham, mainly contributed original tweets with 32% of her contributions being retweets. As previously noted, @pyej is the only prolific participant who did not retweet at all.



**Figure 30: Bonding networks. @jenjonelle and @MaryGoldham.**

While the two most active participants in the event employed different discursive strategies, mobilising different functions of Twitter, Figure 30 shows that both had similar effects on the structure of the chat event network by linking other individual participants and sub-groups within the overall event community. While the two participants occupied important positions as ‘coordinators’ (Jordan, 2016) in generating the density of the network ties linking different parts of the same network, the nature of those ties shows how the different sorts of influence they had on the discursive patterns of the chat events. Therefore, the aggregated data presented in the structural perspective of online communities obscures a diversity of behaviours and actions at local or micro-levels (Wilkie, Michael and Plummer-Fernandez, 2015).

## Influence and trust

Behind the SNA visualisations in Figure 30 is the suggestion that the discursive strategies of the two participants generated very different positions of influence within the network of interactions during the event. The analysis found that while both participants had similar Degree<sup>32</sup> scores, how these scores were constituted was very different. @MaryGoldham has almost equal In and Out-Degree scores as she was mentioned by other participants (as replies or retweets) as much as they mentioned others.

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<sup>32</sup> Degree refers to how many ties come in (in-degree) to or are initiated by (out-degree) an actor (Wasserman and Faust, 1994) For example, an actor with a large out-degree mentions, replies to or retweets many other participants in the discussion events while an actor with a smaller out-degree mentions, replies to or retweets few other participants. Conversely, a larger in-degree indicates a participant who is frequently mentioned, replied to or retweeted and a smaller in-degree indicates that the participant’s tweets are less noticed by others.



However, @jenjonelle had a low In-Degree and a higher Out-Degree score indicating that she was rarely cited directly by other participants in the events and her main activity in the events was to engage in replies or retweets. This is related to the proportionately few original tweets authored by @jenjonelle, so generating fewer replies or retweets. So @jenjonelle's communicative strategy appears to be more concerned with the establishment of presence at the event across all the different sub-clusters that emerged over the duration of the chat events. While @MaryGoldham's higher In-Degree rating indicates a greater influence in the discourses of the chat events as her tweets generated replies and retweets.

	In-Degree	Out-Degree	Betweenness Centrality
@MaryGoldham	35	53	2498.83
@jenjonelle	30	61	2435.80
@feesflatt	35	31	1165.40
@JoanneJun1	31	42	1369.07
@JaneDES	35	35	1377.99
@HeddaStaines	29	22	350.56
@mechnk	28	34	373.84
@jesslegge	32	28	376.83
@eTechie	25	22	114.12
@pjbroker	19	35	516.86

**Table 24: Chat A degree scores**

Table 24 shows the participants with the highest In-Degree scores, i.e., who are seen in the chat events as valued sources of information and commentary and so are frequently retweeted and mentioned by others. As the profile summaries (Table 25) indicate, these trusted sources are all established professionals working in the domain of HRD.

	In-Degree	Twitter profile description(*)
@MaryGOLDham	35	eLearning Development & Management.
@JaneDES	35	Former teacher specialising in instructional design and elearning, especially using social media.
@feesflatt	35	Learning technology strategist, problem solver and visual thinker.
@KatiePeggs	34	Director of Learning Innovation and story collector.
@jesslegge	32	Techie, writer and workshop facilitator on learning, health, knowledge and organizations.
@irenegturner	31	(Profile is just the name of her employer, an educational charity).
@JoanneJun1	31	VP Instructional Design (at L&D consultancy)
@jenjonelle	30	Instructional designer and supports #Chat A
@HeddaStaines	29	L&D professional
@mechnk	28	Web design, social media, Training & Development and branding.

**Table 25: Chat A profiles**

Adapted from Gruzd and Haythornthwaite, 2013.

(\*) Profiles have been amended to maintain participant anonymity

It is notable that @jenjonelle has the only profile that mentions the chat event series. This indicates that she has a greater explicit commitment to the chat events. This commitment may help explain her bias towards retweeting during that chat event as a way of promoting the events through the tweets of others. Mobilising the retweet function of Twitter provides a simple, 'one-click' way of posting tweets that contain the event hashtag and promote the event to both her and the tweet author's personal Twitter networks.

Table 26 shows the most active participants in Chat B.

	In-Degree	Twitter profile description(*)
@JulieHeath	114	Author and a very old millennial. #WorkingOutLoud
@McCreativity	79	Supporting organisations in the strategic use of learning technology.
@cbitrain	53	Education Professional with a passionate interest in elearning, new technology and apps.
@mikey_jones02	47	Business analyst, software developer and user-trainer in telecoms.
@TrainingPete	32	...writer, speaker. Loves all things learning
@LearningViewer	44	(blank profile).
@onlyastorm	41	Instructional Designer Higher Education
@brendanstyle	40	Software Architect, Knowledge Manager, Founder and Lifelong Learning enthusiast
@jonscowhanon	37	L&D practitioner applying scientific methods to learning.
@Sharon_Church	34	Focused on elearning, instructional design, social media/ learning.

**Table 26: Chat B profiles**

Adapted from Gruzd and Haythornthwaite, 2013.

(\*) Profiles have been amended to maintain participant anonymity

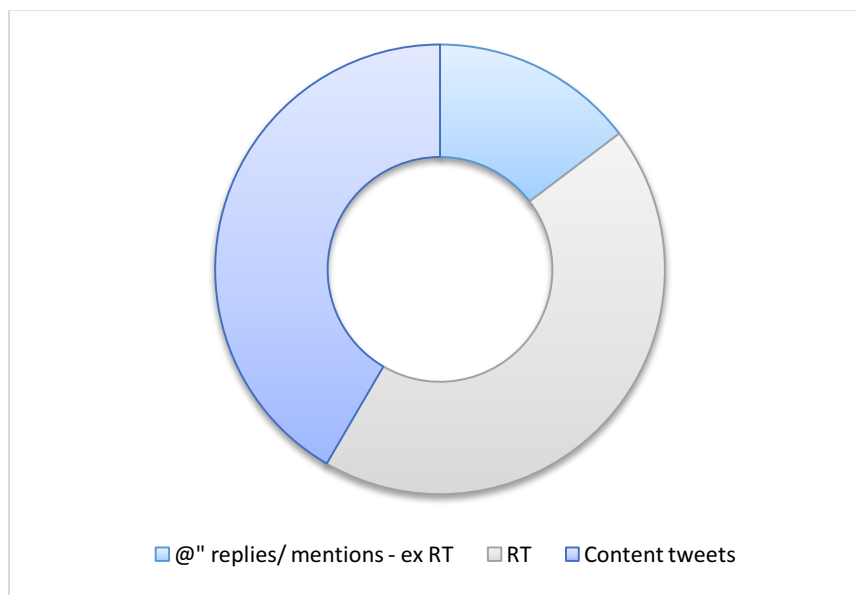
The range of professional identities is wider in Chat B (Table 26) than those found in Chat A (Table 25). Two participants, @JulieHeath and @TrainingPete explicitly position themselves as public experts as authors and speakers. The diversity of domains of competence and interest among the participants of Chat B suggests a stronger trajectory of deterritorialisation of the chat event assemblage. This suggests that participants in Chat B move between different assemblages of different professional domains and practices. As such, the participants in Chat B have stronger relations of exteriority (DeLanda, 2006, p.10) and so can be enrolled into many network-assemblages. Indeed, the same technological functions of Twitter that generate network ties of a single community may also be mobilised to transport material of the chat events to different community assemblages.

The structural lens of online community amplifies particular patterns of relations within the chat event network-assemblages. These patterns are the outcomes of the entanglements of participant behaviours and the inscribed functions of Twitter itself including the requirement of using the event hashtag. In surfacing the density of relations and interactions within the chat events, the structure lens reinforces the notion of the chat events as tightly knit communities as suggested by participants themselves and recent studies of these events (Gruzd and Haythornthwaite, 2013; Ford, Veletsianos and Resta, 2014; Megele, 2014; Ferguson and Wheat, 2015; McArthur and White, 2016). Yet the 'sharp territorialisation' of the event communities suggested in the sociograms produced here obscures the fragility of the network-assemblages of the chat events. The generation of sociograms presenting tight-knit community structures depend on small groups of regular participants entangled with the generation trace data signifying network ties by the Twitter platform. Yet behind this territorialisation can be identified the ambiguity, fragility and precariousness of such network ties as signifiers of community.

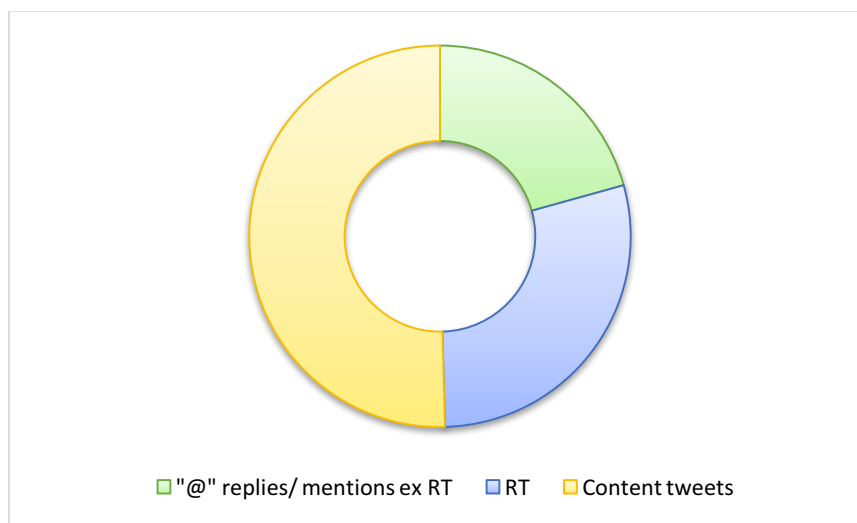
Furthermore, the structural lens does not address the emotional sense of community that defines the notion of online community for many (Glezakos and Lazakidou, 2012). The next section focuses on the emergence of community in these chat events through the generation of aligned discursive stances (Zappavigna, 2011; Megele, 2014; Stephansen and Couldry, 2014). The final section of this chapter will then analyse the common discursive structures generated in these events before closing with an analysis of the orders of discourse (Fairclough, 2003) presented within them.

## Community as discursive structure

In this section of the chapter I shift away from the methods-assemblage of the structural perspective on online community to use alternative methods assemblages. These alternative methods focus on aspects of the discursive structures enacted in the Twitter chat events.



**Figure 31: Chat A user mentions**



**Figure 32: Chat B user mentions**

Figure 31 and Figure 32 show that in both chat event series, tweets involving markers of addressivity are in the minority. The chat events, therefore, appear to reflect other studies on Twitter that found little evidence of direct conversation between users (Fischer and Reuber, 2011; Rui and Whinston, 2012; Riedl *et al.*, 2013; Koutropoulos *et al.*, 2014).

Given the lack of active discussions involving textual interactions between participants, the question of how the chat events are constructed, and how the collective discursive stances emerge, remains key in framing these chat events as examples of online communities. So to help address this question I will draw on Zappavigna's (2014) conceptualisation of a sense of community in online environments as an 'ambience' generated through common repertoires of communicative actions and resources (Heracleous, 2006). In particular, I am framing this sense of ambience in terms of the structural coherence between tweets and so looking at the body of tweets in aggregate (Ross, Terras, Warwick, *et al.*, 2011), as communicative utterances on the same discussion topic. Zappavigna describes such ambience as "talking about the same topic at the same time" (2014, p.211), invoking the mobilisation of a particular hashtag as well as the use of particular discursive repertoires or refrains.

The sequences of utterances (tweets) generated in the chat events are notably short with only occasional sequences extending beyond three or four turns. Figure 33 is a visualisation of the typical sequencing of tweets responding to one initiating question from the event Twitter account coloured blue. Retweets as denoted with the prefix "RT" or "MT" and restatements are marked in light orange while replies are coloured lilac. Figure 33 excludes tweets that were posted within the timeframe displayed but not explicitly

responding to the specific event question. The chat event generated 79 direct responses to that question occurring over a period of 18 minutes. During that period a total of 239 tweets were posted. So this visualisation is a very simplified presentation of the discourse structure of the chat event.

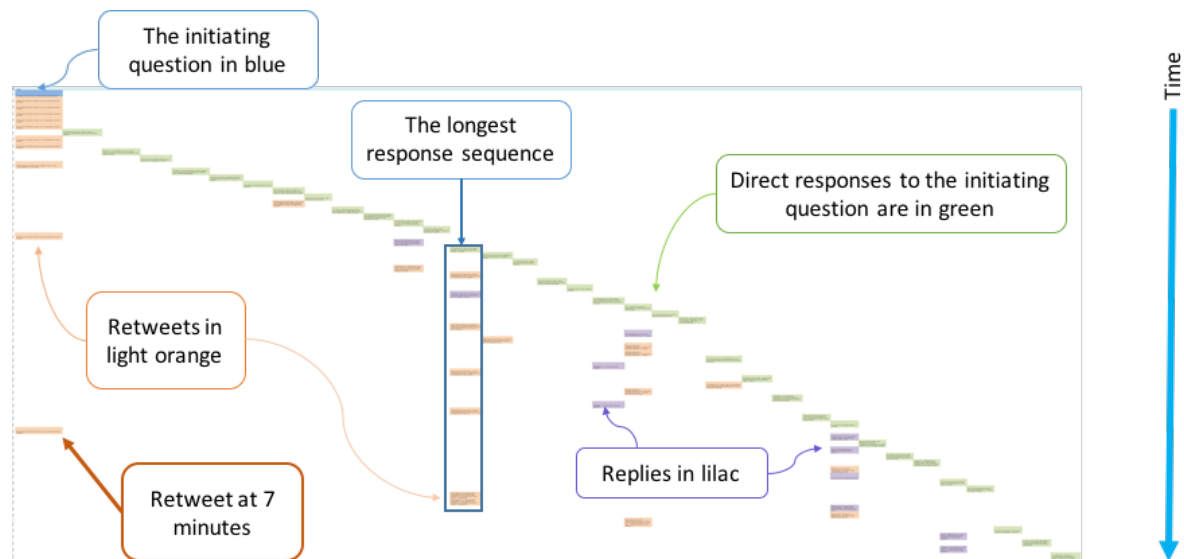


Figure 33: Discourse structure

The initiating question was: “What is organizational culture?”. Figure 33 demonstrates how that initiating question is repeatedly retweeted as a means of stabilising the new question as a conversational floor (Simpson, 2005) for the next period of the chat event. However, there is a retweet of the initiating question posted some seven minutes after that question is first posted. This particular retweet indicates interest in the question itself for other networks rather than to initiate a response or establish a conversational floor in this event.

This visualisation also demonstrates that most specific responses to the question generated no direct response: the green tweets often have no responses below them. The majority of secondary responses were retweets (in

orange) rather than attempts to engage in discussion. The longest sequence (highlighted in the blue box) presented here was in relation to the response that: “Organisation culture is what people actually do: not what they say or think they do”. Through the mobilisation of the retweet function, this response generated a component of cohesion throughout the duration of this section of the chat event. The retweets tended to have short supporting confirmation statements at the end of the retweet, such as “RT @type4pj Organization culture is what people actually do; not what they say or think they do :) #... YES!” The mobilisation of the retweet function, as with the retweeting of the initiating question, is a mechanism that confers coherence to the chat event through repetition as well as translating the tweet content as a discourse style of the particular chat event.

Despite the explicit structure of these organised discussion events, the common communicative pattern on Twitter as ‘serial monologues’ appears dominant (Jones, 2014). Serial monologues occur where participants freely post their own opinions and experiences with only limited attempts to connect with, or refer to, the contributions of others (Pawan *et al.*, 2003). Tweets are posted in response to an initiating question yet rarely stimulate a specific response. I would add two main points here: firstly, the fragmented nature implied by the term ‘serial monologues’ is exaggerated in the selection of the specific display of the data in Figure 33. The actual display of the tweets is more dynamic, fragmented and complex; secondly, a subtle process of establishing particular discursive stances in the ‘community’ emerges in the chat events. These discursive stances may emerge as temporary markers for participants to signify their legitimate membership of the ‘community’.

Table 27 presents a series of tweets from the same sequence as Figure 33 with the retweets of the initiating question removed. The initial responses to the



question (tweets 2 and 3) establish the notion of organisational culture in terms of common or shared beliefs and behaviours. The focus is placed on organisational culture as a collective or collaborative effect rather than as an aggregation of the values and beliefs of individual employees. A stronger organisational orientation can be found in tweet 8 where organisational culture is presented as independent of and controlling of individuals within an organisation. Tweet 5 takes a performance-orientated focus on organisational culture but also introduces the presence of individual people as components of that culture. This concern with the entanglement of the individual and the organisation becomes established as a refrain that runs through the sequence of tweets on organisational culture. Tweets 6 and 7 both state that culture is derived from individual behaviours and the active acceptance of collective norms of behaviour and this idea is then repeated in tweet 16.

1.	@Chat B	Q1) What is "culture", as in "organizational culture"?
2.	@tulip_wun	A1 Org culture is a sense of place, a sense of meaning...a shared value system and way of being #
3.	@ ImagePress2GDF	@Chat B A1: Set of beliefs tht drive corporate behavior, interactions. Sets tone 4 all operations top 2 bottom
4.	@citie	#Chat B A1 culture is what makes yogurt possible. For years it was thought training culture, though good, smelled and tasted bad.
5.	@cbitrain	Q1) Culture is how an organization GSD (gets stuff done) and the people that are part of it #
6.	@LearningViewer	1) What the org /staff accept as norms.
7.	@type4pj	A1) Organization culture is the way we behave and the meaning we attach to that behaviour within that organization #
8.	@Brandi_O	Q1) Culture is what defines us and what confines us.
9.	@tulip_wun	RT @type4pj A1) Organization culture is the way we behave and the meaning we attach to that behaviour within that organization
10.	@ghubaker	A1: Culture is what the people say they value, say they do, actually value, actually do. All rolled up in one thing. #
11.	@AleshaAndrews	A1) Culture/values is what the company puts on a poster but then there is what they REALLY do. Subculture gets interesting! #
12.	@type4pj	A1) Organization culture is the unwritten code and is not always found in the mission, vision and value statements

13.	@brendanstyle	Q1) Culture=Values, stories, background knowledge of a group at a given time
14.	@tulip_wun	Well said! MT @type4pj Org culture is the unwritten code and is not always found in the mission, vision and value statements #
15.	@type4pj	A1) Organization culture is what people actually do; not what they say or think they do :)
16.	@cbitrain	Q1) Culture is the vision of the organization and how colleagues accept or adapt to it
17.	@McCreativity	a1) culture is the set of beliefs and values that guide behavior #
18.	@cbitrain	RT @type4pj: A1) Organization culture is the unwritten code and is not always found in the mission, vision and value statements
19.	@AleshaAndrews	RT @write2tg A1) Organization culture is what people actually do; not what they say or think they do :) #ancdeChat YES!
20.	@citie	A1 Apart from dairy lexicon culture includes the norms of a group of people (maybe all living things).
21.	@Pete_McGregor	-@type4pj I always like 'org culture is how we do things when we don't think about how we do things.'

**Table 27: Discourse structure**

Table 27 initially demonstrates (tweets 2-10) the rapid emergence of a conventional discourse of organisational culture as the articulation of collectively agreed behaviours and values. There is a broadly understood alignment between the values and behaviours of the individual employees and the expectations and values of the organisation (Grey, 2005).

Yet an alternative and distinct discursive stance is then initiated with tweet 11 with the idea of organisational culture being something other than the publicly-stated values and behaviours of an organisation. So rather than being the accepted or agreed norms of an organisation, culture emerges from what employees 'really do' or 'actually do' or it is the unwritten code of a group of people. This emerging position does not contradict the original stance on norms and behaviours but extends it by introducing a distinction between stated and actual norms and behaviours as well as by shifting a focus from the organisation as a whole to small groups and subcultures. This alternative stance also contributes to the wider discourse running through

this chat event series that is critical of organisations and management (Chapter 6, see the section: 'Us and them').

Positional stances emerge through accumulations of tweets from different participants intra-acting with the different functions of Twitter and the structure of the chat events themselves. Retweets emphasise particular propositions through repetition to generate a specific coherent position for a period of the chat event. This sense of coherence or of an agreed stance is further reinforced by the limited character count of Twitter that constrains participants from engaging in the development of oppositional positions or then working through the reconciliation of the different positions. By viewing tweets in isolation from one another, the chat events appear incoherent, complex, messy and fragmented, yet by seeking out markers of coherence-making, and by identifying and viewing sequences as a whole, a sense of coherence emerges and collective discursive positions can be identified.

Overall, two evolving discourse stances emerge in the sequence in Table 27: firstly, an accumulation of tweets establishing organisational culture as a collaborative effect involving employees and the organisation; secondly, an alternative stance contributes to a broader discourse of critique of organisations. This second stance is deeper and more established across the multiple network assemblages of the chat events that make up this specific Twitter chat event series. Yet it is only by viewing and analysing the tweets as whole 'conversations' can these two stances be clearly identified.

It is through such stances that relations of power are enacted within the network assemblages (Ringrose, 2011). As discussed in Chapter 2 (see the section: 'Circulations of power in assemblages'), power is conceived in terms of the generation and direction of perceived possible or legitimate actions and

activities. I draw on the notion of ‘governmentality’ (Foucault, 1979) to analyse the emergence of specific discourses regarding professional practices (Reich and Hager, 2014) within a community. The accumulations of tweets in the chat events have the effect of enrolling and translating those tweets to generate what are legitimate and what are illegitimate discourses on professional practices of the event communities as a whole. Thus relations of power are generated from within the chat event assemblages rather than imposed by external forces (Jackson, 2013b; Farías, 2014).

While one of the dominant discursive structures of the chat events is that of serial monologues, some sequences of tweets did suggest that more interactive styles could also be adopted:

1.	@McCreativity	a1) culture is what derails strategy
2.	@AleshaAndrews	RT @McCreativity a1) culture is what derails strategy -- OR what fuels it (with any luck)
3.	@KnowOD	Absolutely RT @McCreativity: a1) culture is what derails strategy
4.	@type4pj	RT @KnowOD Absolutely RT @McCreativity: a1) culture is what derails strategy
5.	@HeddaStaines	Culture also derails leadership
6.	@McCreativity	RT @AleshaAndrews: RT @McCreativity a1) culture is what derails strategy -- OR what fuels it (with luck) #... / & if doing right, eh? ;)
7.	@geomerck	RT @KnowOD: Absolutely RT @McCreativity: a1) culture is what derails strategy
8.	@pritdon	“RT @McCreativity: a1) culture is what derails strategy ...”
9.	@LindaStoker	RT @McCreativity: a1) culture is what derails strategy

**Table 28: Culture derails strategy**

The sequence in Table 28 is initiated with a response to the overall initiating question on what is organisational culture (tweet 1). This initial statement may have generated salience by being ‘eye catching’ through a number of elements coming together: the author, @McCreativity, is a prolific contributor in this event, with a number of his tweets being retweeted, who engages in a

number of exchanges with others in the event; the tweet is brief so easy to read; and it echoes a well-known statement attributed to the very high profile management academic Peter Drucker that “culture eats strategy for breakfast”<sup>33</sup>. Tweet 2 retweets and extends this statement with the addition of “or what fuels it”. By using a retweet, tweet 2 makes clear that it is linked to tweet 1 through repetition while the extension adds to the original tweet without disagreeing, qualifying or invalidating tweet 1 (Belnap and Withers, 2008). Tweet 3 is again a retweet and extension of tweet 1, but the extension is a simple statement of agreement: “Absolutely”. This production of a sense of coherence through repetition that is seen in tweets 2 - 4 is continued through tweets 6 – 9<sup>34</sup> in this sequence, with the last three tweets being straightforward retweets with no extensions to the initiating tweet (1). Tweet 5 is an attempt to ‘fork’ the sequence in to a discussion on leadership and culture, however, this tweet generates no further responses while the subsequent retweets consolidate the initiating topic. By maintaining a sense of coherence and interaction through retweeting and user mentions, particularly of @McCreativity, this excerpt as a whole generates a clear position that organisational culture is more important than strategy.

As illustrated by Table 27 and Table 28 the chat events can be understood to generate a sense of community by establishing common discursive

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<sup>33</sup> This attribution to Peter Drucker is second or third hand, but he also appears not to have rejected or denied the quote or sentiment of the quote during his lifetime.

<sup>34</sup> It is worth noting that tweet 8 is a restatement of a retweet of the initiating tweet rather than a retweet itself. This is a recurring discursive action within this chat event series that generates the discursive effects of a retweet but without using the inscribed functions of Twitter.

repertoires (Heracleous, 2006; Stephansen and Couldry, 2014). Zappavigna's (2014) notion of 'ambience' assists in understanding the emergence of a sense of common repertoire through participants discussing the same topic using common communicative actions and resources. The generation of conversational coherence is achieved through zooming out to view the aggregation of tweets as a single emergent and distributed conversation (Mills and Chandra, 2011; Ross, Terras, Warwick, *et al.*, 2011) rather than through zooming in to individual sequences within the chat events. It is at this cumulative level that community on Twitter emerges (Wilkie, Michael and Plummer-Fernandez, 2015).

## Mediating technologies

The sense of working within common repertoires can be reinforced through the workings of the Twitter software and user interfaces in the aggregation, organisation and presentation of timelines and topic 'streams'. Using a specific application such as Tweetdeck<sup>35</sup>, different tweets are made co-visible to the participant in a multiple column streams organised by search terms and hashtags (Figure 34).

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<sup>35</sup> Available via <http://www.tweetdeck.com/>

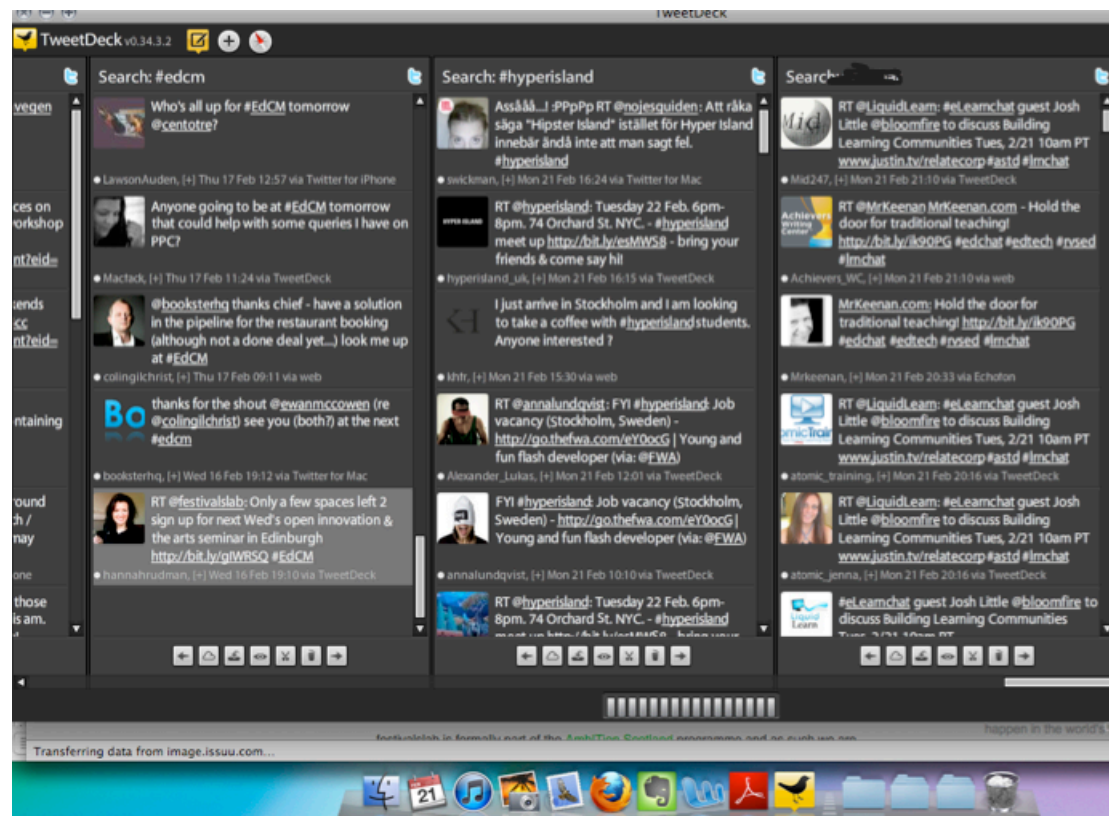


Figure 34: A view of Tweetdeck

As I have discussed previously (Evans, 2015), the available technology influences how users understand these discussion events. The presentation of multiple columns of tweets on a single desktop may create a sense of a common discursive repertoire (Zappavigna, 2014) co-present across the different streams of Twitter activity. A single tweet appearing in multiple columns may be understood as indicative of the broader network of communities that the user is enrolled in. Participants may contribute to a chat event through placing their contributions in a different network-assemblage represented as a specific column in the user interface. By appearing across multiple columns, or being authored by particular users, or by using striking images or phrases, the differential salience (Van Leeuwen, 2005), or distinctiveness, of particular tweets is generated. Simultaneously with this, the multiple column interface generates a sense of the chat events being part of a wider assemblage of Twitter communities, with new tweets being added

to different columns with participants in the chat events also appearing in other columns as well as a single tweet appearing in multiple columns. As Gillen and Merchant (2013) point out, tweets are not read and understood in isolation from one another. Rather tweets are read, and made sense of, as part of a larger collective of tweets that are gathered into a single screen. Such gatherings entangle the viewer's choices of who to follow and what hashtags to follow, the configurations of application user-interfaces, and the data drawn to the application through the Twitter API to create a particular materialisation of that user's Twitter community.

## Community and my imaginary 'crowd'

Participants tended to project the chat events as places or locations where they could find other people 'like' them. For example, Table 29 displays a series of tweets from the Chat B series of events that show the assertion of a particular identity to the chat event community:

1.	@LearnLoc	I remember being excited [to find] people that shared my [professional] interests [and] that I could learn from
2.	@ldexpert	Learned from early #Chat B that there were others like me ... Not futzing with ... learning objectives but making change.
3.	@anILDblog	We're here and passionate to learn more ...
4.	@ricenat93	Q4) that's what we do... All day. But it beyond the tools. Its a new way of working. #workingoutloud

**Table 29: People like me**

Tweet 1 (Table 29) presents the chat participants as having similar interests and competences within a common professional domain that @LearnLoc could learn from, thereby suggesting that they were in deficit to the knowledge and experience of other participants. @LearnLoc does not suggest that they have something to contribute and that others could learn from her or him. So tweet 1 reflects a market-matching perspective of online networks



and community while including an affective component: a “being excited ” that is self-orientated rather than enacting a sense of community.

Tweet 2 employs a common discursive style that presents as imagining the chat participants as a community of like-minded activist practitioners and change agents, accompanied by a repellant ‘othering’ of those that ‘futz’ about with learning outcomes and do not participate in the chat events. These others are identified as being members of a wider imagined professional community but in deficit to the chat participants who are more activist and impactful professionals than most within the professional domain. @Ldexpert, as denotes their Twitter name, does not suggest they are joining the chat community as anything other than as a member of equal (of ‘higher’) status.

While tweet 2 distinguishes the chat participants in terms of an orientation to action, tweet 3 distinguishes the chat event participants in terms of attitudes and a passion to learn and that passion is enacted by participating in the chat events: that is by being ‘here’.

The final tweet, tweet 4, identifies the chat participant as being engaged in a specific practice of ‘working out loud’. ‘Working out loud’ is a branding of a set of practices associated with claims to capture and share work practices, capturing tacit knowledge and surfacing workplace activities and skills using social media tools (Bozarth, 2014; Stepper, 2015). Tweet 4 identifies the chat participants as enacting the practices of a wider, distributed and imagined community identified through the hashtag of “#workingoutloud”. The reference to the practices associated with ‘working out loud’ are part of a broader discourse of the chat participants that identifies themselves as an exemplary community within the wider domain of HRD practitioners.

So we can see that the identification of the sense of community emerges through the discursive territorialisation of particular aptitudes, attitudes and practices that individual participants imagine that they have in common within one another and that distinguishes them from other actors within a wider professional domain. The idea of being a member of a community is validated through the adoption of common discursive repertoires and the production of a particular frame of discussing professional practices (Reich and Hager, 2014). Hence working within the perceived governing norms of an imagined community is a key part of being a member of that community.

## Territorialising the community

In this section of the chapter, I will analyse the discursive styles mobilised in the Twitter chat events with a particular focus on the textual enactment of in-group presence and 'otherness' that excludes and delegitimises particular alternative discursive stances.

### Talking a community into being

A key component in the emergence of a sense of community can be seen in the particular formal or informal register of the text of a tweet and in the use of phatic communications (Dann, 2010; Koutropoulos *et al.*, 2014). Phatic communication refers to communication that has no other purposes than in keeping channels of communication open or has a purely social function (Miller, 2008).

Table 30 presents a sequence of welcoming tweets from a single chat event. The sequence includes a mixture of social tweets employing different degrees of formality and performing different functions in the event.

1.	@Chat A	Please introduce yourself ... where are you, what do you do ... what brings you here?
2.	@brightco	RT @Chat A Please introduce yourself ... where are you, what do you do ... what brings you here?
3.	@jonscowhanon	Hi @KatiePeggs @jenjonelle @ MaryGoldham @brightco
4.	@JoanneJun1	RT @Chat A Please introduce yourself ... where are you, what do you do ... what brings you here?
5.	@Lucido2001	Lucy wlp mngr for a pump co. finally tuning into
6.	@MaryGoldham	Hi back! @brightco @jonscowhanon @KatiePeggs @jenjonelle @brightco @Feesflatt @AmazingBit
7.	@fergusmcgregor	fergus from ... Looking forward to exploring design thinking with you all
8.	@jonscowhanon	Jon Cowhanon in ..., Twubs brought me here today ... Only chat platform works at work. How is everyone?
9.	@brendanstyle	Brendan Style, ... KM & eLearning software, Currently experimenting Design Thinking
10.	@MaryGoldham	Mary Oldham from ... -- Great to see you all!
11.	@brightco	RT @Lucido2001 Lucy wlp mngr for a pump co. finally tuning into #Chat A // welcome
12.	@Feesflatt	Mark Feesflatt, Learning Tech Leader joining Chat A from ....
13.	@KatiePeggs	Katie Peggs from ..., digital content and all things learning geekiness
14.	@JoanneJun1	Q0) Joanne June in .... VP, Inst Design Services for @BigCo Ready for a great discussion today
15.	@KatiePeggs	@brendanstyle hi Brendan :-)
16.	@egast15	Charles Blake, Training Manager in ...
17.	@Feesflatt	RT @Chat A Please introduce yourself ... where are you, what do you do ... what brings you here?
18.	@StrtBwd	Stuart Burwood   ...   Learng Dev Consultant - (Been gone awhile!) #
19.	@brightco	RT @egast15 Charles Blake, Training Manager in ...
20.	@jenjonelle	@Lucido2001 welcome Lucy! :) thanks for joining today!

**Table 30: Welcoming and phatic communications**

Tweet 1 (Table 30) is a request from the event Twitter account for all participants to introduce themselves. This request is for all participants and not only for non-regular participants. The immediate retweet in tweet 2 is likely to be a means of promoting the start of the event to the wider Twitter network of that participant. That participant does not introduce themselves in this sequence but rather retweets the introduction of others as a form of welcoming. Tweet 3 is a simple welcome to a specific list of regular participants in these events and as so uses phatic communication as a

mechanism for denoting a particular core 'in-group' for the chat event and to seek their presence in the event. This approach is validated through the response in tweet 6 and in tweet 15.

The author of tweet 3 does introduce themselves in tweet 8 but maintains an informal register denoting a sense of belonging to the group or community. An informal register is used by a number of regular event participants in tweets 7, 10 and 13. However, tweets 12 and 14 use a more formal register although the authors are regular participants in the events.

Tweets 9 and 16 are from new participants in the chat events and both adopt a more formal register with largely informational content. Tweet 18 also adopts a more formal register but adds the claim of having previously been a participant in the chat events. While tweet 5 is from a new participant that adopts a more informal register and declares that "finally tuning into #Chat A". Yet this participant had previously been a participant in other Twitter chat events and was already linked to the Twitter accounts of some of the other Chat A participants. Thus, @Lucido2001 may include the chat event as part of their wider personal professional and virtual networks and spaces. @Lucido2001's introductory tweet is retweeted twice with added words of welcome (tweets 11 and 20).

In discourse terms, register refers to the discursive style associated with a particular group or speech community. Register invokes Fairclough's (2005) concept of discursive style and its entanglement with identity. Hence Bhatia (2002) discusses a specific science register, or legal register or refers to 'journalese' (the register or style of journalists). Register may also change according to modes of communication. For example, Schmied's (2012, p.49) identification of Instant Messaging as "a unique new hybrid register,

exhibiting a fusion of the full range of variants from the speech community – formal, informal and highly vernacular” could also be applied to Twitter.

Register is often used as a marker of experience in the chat event with the core group of regular participants using a less formal register in their initial tweets. However, this is not always the case with some regular participants using a more formal register. There is also little evidence of participants shifting their initial register to be less formal during the duration of the data sample analysed here.

The sense of belonging as expressive components of the chat event assemblage can be found in other forms in the discourses employed during the events. In particular, these could be found in the discursive practices of bonding and the treatment of differences.

## Bonding

Table 31 shows a use of pronouns as a way of providing a sense of belonging for the chat event participants.

1.	@MaryGOLDham We lrn frm each other, we use tech to communicate w/each other. Texting and tweeting are bite sized learning.
2.	@jonscowhanon A2) Example how tech drives learning? This. I have access to all of yr creativity, now + most of time when I ask.
3.	RT @Feesflatt Open up the conversation about what learning can be. // Quite, as we are doing here!

**Table 31: Belonging**

Here, the tweets are used to emphasise the behaviours of the chat participants as joint and exemplary behaviours. Social learning mediated by social media is presented not only as good professional practice (see Chapter 8) but also as the common behaviour of participants in the chat events. So participation in the chat event is itself a performance of the archetypal HRD

practitioner as well as providing a sense of belonging to a particular community. This sense of belonging is reinforced through discursively differentiating the chat participants from others.

## Assembling dominance

There is a tension between the idea of coherence and structure in the larger-scale of tweets that generates identifiable lines of attrition, and the messy, incoherent and unstructured aspects of Twitter to be found at the smaller scale of individual tweets or shorter sequences. This tension is most readily surfaced in the treatment of controversies that collide with the established repertoires of the discourse community.

The sequence presented in Table 32 is a brief sequence on organisational culture and sub-cultures.

1.	@Chat B	Does an organization have only one "culture"? Should it only have one?
2.	@LearningViewer	Q4 I don't think it can. Each dept needs different cultural norms.
3.	@carmensmith	"@LearningViewer: Q4 I don't think it can. Each dept needs different cultural norms. ..." //agreed
4.	@JulieHeath	@carmensmith and yet we talk about 'culture' as if org has just one
5.	@ghubaker	@JulieHeath @carmensmith True. Important to remember there are overlapping cultures in play, not just a monolithic one. l
6.	@carmensmith	"@JulieHeath: // yet we talk about 'culture' as if org has just 1 #..." // we adapt training for "regional differences"

**Table 32: Organisational culture and sub-cultures**

The initiating question, tweet 1, generates an assertion that an organisation cannot have a single culture. The initial negative response is expressed in the use of the phrase "I don't *think* it can" (emphasis added). Tweet 2 is then supported in tweet 3 through a retweet and confirmatory statement. Tweet 4 however reasserts the dominance of the notion of a single organisational

culture. Again, tweet 4 includes some hedging with the use of the phrase “yet we talk about ...” rather than asserting that organisations have only one culture. Tweet 5 seeks a reconciliation of the different stances while tweet 6 asserts the importance of organisational sub-cultures in reply to tweet 4. In support of its stance, tweet 6 aligns itself with what it perceives as common professional practice: “we adapt training...”. Tweet 6 involves enrolling a wider network in support of the stance in contrast to the hedging in tweet 2 and in tweet 4. This is the end of this sequence and the chat event’s dominant sequences change.

Table 32 presents a common approach to divergence of opinions with alternative positions expressed, a possible reconciliation that includes both stances being presented, but no conclusion is actually reached and the participants then engage in other sequences.

In contrast Table 33 provides one of the more vociferous attempts to accentuate differences within a chat event through the use of polemic (Fairclough, 2003):

1.	@ksiptentis	learning is not a measure that biz care about - performance .. is. #
2.	@kbarlow	@ksiptentis [Screw the] business – if everyone walks out, there is no business – measure that
3.	@ksiptentis	@kbarlow Wow, I haven’t used those words ... before, refreshing...
4.	@kbarlow	@ksiptentis it is a fact – no ppl, no biz – becomes a problem when ppl are no longer interchangeable
5.	@ksiptentis	@kbarlow Roger that

**Table 33: Polemical difference**

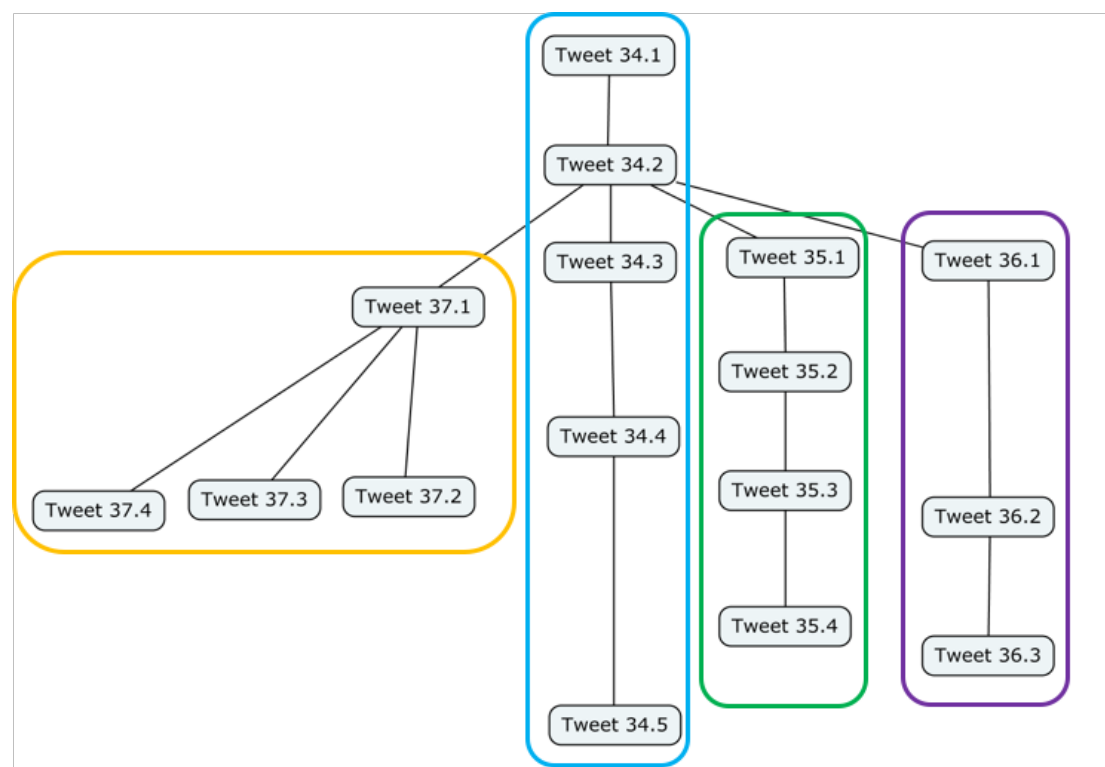
Tweet 2 (Table 33) gives a clear qualification of the proposition in tweet 1. Tweet 3 expresses surprise at the language used without providing approval or rejection of the proposition itself while tweet 5 responds with a further

clarification and justification for the original statement in tweet 2. The final tweet 5 is an acknowledgement of the qualification but does not appear as an invitation to continuing the sequence of exchanges and these two participants do not directly address one another throughout the rest of the event. This particular exchange sequence is subsequently over-ridden by the cumulative speech of the chat event and the sense of an overarching discursive alignment is reasserted. An outcome of the chat event assemblages is the generation of discursive consensus and the bracketing of differences (Fairclough, 2003, pp.41-42)

### Dealing with difference

Controversies in the chat events are fairly unusual but a few do generate extensive and multiple sequences running in parallel to one another. The structure of sequences that developed the discussion on the translation of understanding on how technology may “drive” learning is shown in Figure 35 with four main sequences identified in the four coloured boxes:





**Figure 35: Sequence structure**

The four main sequences shown in the boxes in Figure 35 are detailed in Tables 34 – 37. Figure 35 shows the overall structure of the sequences related to the controversy and linked by replies or retweets. The initiating question from @jonscowhanon is at the top of the figure. Table 34 is shown in the blue box, Table 35 is in the green box, Table 36 is in the pink box and Table 37 is in the orange box.

The sequences were initiated by a tweet responding to the event question 2 asking for examples of technology driving learning. This generated a short main sequence as follows:

1.	@jonscowhanon	A2) Example how tech drives learning? This. I have access to all of your creativity, now as well as most of the time when I ask
2.	@ally_b	@jonscowhanon this? this is facilitation, not driving. or did I miss something?
3.	@jonscowhanon	@ally_b I'm interpreting "drive" loosely

4.	@jonscowhanon	@ally_b And facilitation is only an enabler, I'm the one who choosed to learn
5.	@pjbroker	In new, more engaging ways. RT @jonscowhanon @ally_b And facilitation is only an enabler, I'm the one who chose to learn

**Table 34: Disputing 'drive' [1]**

Tweet 1 (Table 34) can be seen as a move to mobilise the network of the event community by citing it as a valued example of technology driven learning. This tweet was swiftly retweeted without further comment, which may be perceived as an endorsement. However, this translation of the discussion event is countered in tweet 2 by defining the discussion event itself as a facilitator of learning. This attempted 'fabulation' (Johansson, 2015), or deviation, is countered in tweets 3 and 4 by confirming that, in effect, the term 'drive' was utilised without reflection. Tweet 4 positions learning as a conscious and individual process. Tweet 5 supports and extends the assertions in the previous tweet and closes the sequence with no real clarification or agreement on what might be meant by 'technology driving learning'.

Tweet 2 of Table 34 also generates a separate sequence presented in Table 35:

1.	@jenjonelle	@ally_b @jonscowhanon would you have even known about these chats happening, let alone joined in & potentially lrn w/out tech?
2.	@jenjonelle	@ ally_b @jonscowhanon actually, they wouldn't be happening at all w/out the tech
3.	@ally_b	@jenjonelle @jonscowhanon don't get me wrong. Tech facilitates, enables, amplifies. But I don't agree it drives anything.
4.	@ally_b	@jenjonelle @jonscowhanon even if you take MOOC or peerogogy, they are not driving learning. They are enabling learning.

**Table 35: Disputing 'drive' [2]**

In tweets 1 and 2 (Table 35), we can see that in response to the original disputing tweet, @jenjonelle reasserts the premise of the discussion event established in the original briefing post and related material. So, @jenjonelle is acting in a facilitating role to “shape the useful roles” (Wang, Anstadt and Goldman, 2014, p.140) of participants, to reassert the translation of the discussion topic established in the original event post and related material and to mediate this translation through the participants’ direct experience of this discussion event. Tweets 3 and 4 again, reassert the original dispute over the translation of the terms ‘driving’ and ‘facilitating’ (for further discussion on facilitation in the chat events, see Chapter 8 and the section on ‘Accomplishing the facilitation of learning’). Again, no resolution of the dispute is reached and the discussion moves on.

It should be noted in Table 36 that @jonscowhanon does not respond to any of the points made but remains enrolled in the discussion through the Twitter reply function. This lack of response could be due to @jonscowhanon feeling that a response has been given through the sequence presented in Table 35. Both these sequences occurred conterminously and may well have been viewed in a continuous column of tweets.

A further attempt to bracket off the disagreement in a separate sequence was also itself rejected (Table 36):

1.	@DeepThinkRos	@ally_b @pjbroker I'm sure it isn't - perhaps it's semantics in this instance?
2.	@egast15	@ally_b @DeepThinkRos @pjbroker Maybe if you think of the matter/question as: How does technology advance the cause of learning?
3.	@ally_b	@DeepThinkRos @pjbroker I would have brushed it off as mere semantics, but not in this case. The difference is too big here

**Table 36: Disputing 'drive' [3]**

The sequence in Table 36 shows an attempt to reduce the dispute to “semantics” in tweet 2 that is rejected in tweet 4 as being too much of a difference (whether the difference is too great or too important or both is not clear here). Tweet 3 suggests an avoidance of the dispute through a (re)translation but this attracts no response.

Finally, while the sequences of tweets shown in Tables 34-36 attempt to either avoid or downplay the dispute or to correct the assertions being made, in Table 37 we can see a sequence of responses suggesting alternative approaches to addressing the dispute:

1.	@pyej	Q2 Sounds like there is some discrepancy on what is meant by "drive."
2.	@JaneDES	@pyej Q2 Sounds like there is some discrepancy on what is meant by "drive." //Yes, it does: lead, power, direct?
3.	@jenjonelle	@pyej Q2 Sounds like there is some discrepancy on what is meant by "drive." //just answer for your interpretation
4.	@MaryGOLDham	I think it is good that we have different opinions here - great healthy discussion to see different points of view

**Table 37: Disputing 'drive' [4]**

Table 37 presents a sequence of tweets that provides a meta-commentary on the discussion and has the effect of ending the disagreement. Tweet 1 initiates the sequence through commenting on that the dispute is occurring. This tweet is responded to by @JaneDES, another member of the organising group for the event community, suggesting alternative and, perhaps, less contentious terms to avoid further dispute while also supporting the dominant discourse of the chat events and social media in general as open, welcoming, flexible and ‘smooth’ (Bayne, 2004). In contrast ‘drive’ denotes striation, lines of attrition, control and compliance with moving in a particular direction and for a specified purpose. In tweet 3, @jenjonelle

attempts to blunt the tension by reasserting a sense of smoothness: “just answer for your interpretation” that is aligned with a discursive structure of these events that different opinions are welcome. Yet tweets 3 and 4 do not attempt to reconcile the divergent views between the author of the initiating question 2 with other views, nor to open the discussion by probing or expanding on different views. The pace of the chat events also intervenes here as within 34 seconds of tweet 4 being posted, the chat event account posts a new question and the discussion moves on. The entanglement of tweets, replies and retweets that contribute to the ambient salience of the sequences of the dispute recede down the participants’ timelines and off their screens. The treatment of deviations from the majority discourse through challenge, retranslation, bracketing-off or ignoring such deviation is a pattern across these chat events. There is little evidence of actions seeking to synthesise or reconcile differing viewpoints.

The norms of the communities are emergent properties of the tweets that accumulate as communicative actions into discursive structures (Heracleous, 2006) that shape what are perceived as legitimate and illegitimate orders of discourse (Fairclough, 2003) within this specific community (Stommel and Koole, 2010). It is this emergence of ordering effects that generate a sense of belonging associated with an online community and territorialises that community.

## Conclusion

My aim in this chapter has been to explore the assemblage of ‘community’ in the Twitter chat events. I argue that, at a macro level, community is performed through the mobilisation of the functions of Twitter to generate network ties and the ambience associated with a sense of a gathering of actors

engaged in a collective discourse and drawing on a common repertoire of words and phrases. Simultaneously, at the micro-level, the boundaries of the common repertoire are made, unmade and transformed in discursive struggles as short interactional sequences. The discursive struggles at the micro-level tend not to be explicitly resolved, or different stances reconciled, yet a macro-level sense of community coherence is maintained. Thus the ordering effects of a discourse community are performed at the macro-level while ongoing disorder, fragmentation and fluidity are enacted at the micro-level (Wilkie, Michael and Plummer-Fernandez, 2015) without reconciliation and without breaking apart the network assemblage of the chat events.

The methods-assemblage used in my analysis in this chapter generates a clear territorialisation of an online community that obscures the ambiguity and fragility of those community structures surfaced by drawing on other components of the grids of analysis. The methods-assemblage therefore surfaces processes of territorialisation and destabilisation of the network-assemblage occurring simultaneously.

A second thread of analysis further develops the grids of analysis by drawing on Critical Discourse Analysis to investigate the discursive structures, styles and genres mobilised in the chat events. I argue that a sense of community is an outcome of particular orders of discourse (Fairclough, 2003) in two main ways. Firstly, discursive structures of genre and style are assembled through both direct repetition and novel re-presentation of specific tweets and broader discursive stances in the events. In particular, the effects of cumulative talk (Mercer, 2004) mobilising the repetition of keywords and collocates, images and user-mentions, generate the material-discursive structures that shape the material discursive actions in the events (Heracleous, 2006). These multiple possible trajectories may lie in tension

against established discourses and regulatory regimes of the chat events. As a result, discursive struggles occur as competitive accumulations of discursive resources supporting particular positional stances rather than by direct disputation. These discursive struggles and multiple possible trajectories are framed in terms of 'reassembling' responses to the dominant discourses of the knowledge economy, speed and technological determinism.

Secondly, building on the notion of 'otherness' identified in Chapter 6 (see the section 'Us and them'), the chat events mobilise the use of diectic markers to generate a sense of an immediate shared proximal space and enact both in-group presence and out-group 'otherness'. I argue that through processes of 'othering' the chat events assemble multiple ephemeral and 'non-coherent' realities (Law, 2004) at a granular level without destroying a sense of community at a larger-scale. Thus the sense of a coherent discourse community is found in the communicative structures of the aggregated tweets while fragmentation, disorder and fluidity continue at the granular scale (Wilkie, Michael and Plummer-Fernandez, 2015).

I argue in the previous chapter that the professional identity of HRD is being increasingly eroded through changes in notions of professionalism and employment practices driven by a post-industrial capitalist social order. In this chapter, I analyse how these Twitter chat events generate effects of online communities through entanglements of digital technologies with orders of discourse that strive towards the production of new bases of professionalism and professional validation. In the next chapter, I examine how these Twitter chat events function to assemble an emerging professional identity characterised by the notion of 'enterprising selfhood'.

# Chapter 8: Gatherings of Professional Learning

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## Introduction and overview

In this chapter, I focus on the processes of assembling the Twitter chat events as socio-material gatherings of professional learning. The chapter is divided in to two main sections. The first section examines how the Twitter chat events assemble performances of the ‘enterprising self’ (du Gay, 1996) and Castell’s self-programmable knowledge worker (Castells, 2000b). The ‘enterprising self’ produces manifestations of professional learning that both ensure and display the commitment of professionals to lifelong learning and the ongoing renewal and demonstration of professional competences. The analysis presented here highlights the socio-material entanglements of personalised learning manifested in the construction of personal learning networks and practices of ‘working out loud’. Professional learning is therefore framed as a display of capacities for change and network expertise that emphasise the ‘knowing how to know’ (Edwards, 2010, p. 30) necessary for the performance of a particular professional self-hood.

The second section of the chapter traces how the interactions of text, multi-modal artefacts, discursive actions and structures, genres and styles, technologies and data traces are entangled in assembling the chats as learning events. Thus, this section of the chapter addresses the capacity for a socio-material approach to examine how professional learning occurs “from the ground up” (Wesely, 2013, p.305). I argue that certain regulatory regimes are assembled as the norms that constitute ‘proper’ professional practice. These



regimes emerge from the interactions of the functions of Twitter and the discursive actions and structures that generate dominant discursive styles of cumulative talk (Mercer, 2004) and instructional talk. These styles generate particular processes of ordering that stabilise the chat events. Finally, the facilitation of the chat events is examined as an accomplishment of discursive and technological actions distributed across a heterogeneous range of actors. So it is these processes of the production of the regulatory regimes and discursive structures that normalise work intensification and precarious relations of employment and that demand continued exhibition of employability through learning.

This chapter employs the methods assemblage to amplify how various assemblages intra-act in the chat events to generate different realities of professional learning (Gale, Turner and McKenzie, 2013, p.560). I argue that these chat events assemble a particular conceptualisation of professionalism in post-industrial economies characterised by the notion of the 'enterprising self'. Simultaneously, the chat events are performances of that conceptualisation of professionalism through the processes of assembling learning in the chat events. I argue that the tracing of these processes are increasingly important as the traditional institutions for the validation of professional knowledge and identity are eroded in the knowledge economy to be replaced by new sites of professional identity-making, such as these chat events.

## Assembling the self-programmable learner

Twitter chat events in general are positioned primarily as learning activities in the academic literature, whether as learning ‘to become’ a particular professional (Ferguson and Wheat, 2015); as sites of dialogic, collaborative and self-directed learning (Megele, 2014); or as enactments of learning communities or networks (Ford, Veletsianos and Resta, 2014; Megele, 2014; McArthur and White, 2016). This is replicated in how participants also describe these chat events as “...wonderful communities of learning ... [providing] experiential learning opportunities ...” (Paul Signorelli & Associates, 2013), while Bozarth (2009, no pagination) discussed learning in Twitter chat event as where:

*Sequential, linear thinkers tend to have a hard time following it. But you know what? 21st century information is going to be messy, and those who can deal with that messiness and the accompanying ambiguity will be ahead of the pack.*

There is a tension in these two descriptions of Twitter chat events with the former emphasising the events as examples of community and the latter having a more individualistic focus. The latter quote highlights an exclusiveness in the chat events, that they are not for “Sequential, linear thinkers”, which is absent from the description from Paul Signorelli & Associates. The latter quote positions the chat events as a displays of competences in dealing with “messiness and the accompanying ambiguity” that are important aspects of employability in the knowledge economy. So the chat events are described as components of the display of the enterprising-self.

As I have argued earlier in this thesis, these chat events are a partial response to the instability of a professional domain and the erosion of structures of professional identity, validation and learning (Thompson, 2010; Nerland and Karseth, 2015) and the instabilities, precariousness and vulnerabilities associated with post-industrial knowledge economies. The fluidities of professional institutions have orientated notions of professionalism towards a commitment to lifelong learning and the demonstration of relevant competence and skills as a means of securing employability in a precarious labour market (Tams and Arthur, 2010; Fenwick, 2013). Professionalism, therefore, suggests a tendency of an 'enterprising self' striving to continuously demonstrate relevance and value in the marketplace of her or his professional domain (Vallas and Cummins, 2015). The chat events are positioned as examples of distributed knowledge sharing in occupational networks (Thompson, 2010; Malcolm and Plowman, 2014) while supporting professional self-reliance (Wesely, 2013) and individualisation (Fenwick, 2013). Yet, from either trajectory, the Twitter chat events are examples of professional identity-formation and, therefore, of professional learning (Gillen and Merchant, 2013).

This position of professional learning as both 'becoming' and 'being' a professional suggests that processes of professionalisation can never be complete or finished. As Beighton argues, professionalisation is not achieved through "the goals or standards to which it is equated" (Beighton, 2013, p.113) but is an outcome of showing what the individual *has* done and what they are *becoming* capable of doing. So professional learning is concerned with the mobilisation of particular socio-material capacities within a given assemblage of professional action.

## The enterprising self as learner

The Twitter chat events assemble enactments of Castell's self-programmable learner where learning is performed within networks as demonstrations of both competence or expertise and of developing and updating 'relevant' skills and knowledge. So the chat events are opportunities for the display of the self-programmable worker and subjectivities of the 'enterprising self' (Vallas and Cummins, 2015).

The clearest refrains on the theme of the self-programmable worker in the chat events occur in relation to the individualisation and personalisation of learning and in discussions on 'working out loud'.

### Personalised learning

A key component in the assembling and performance of learning in the Twitter chat events is the notion of personal or individualised learning. Individualised learning in digital contexts is often articulated in terms of a Personal Learning Environment (PLE). PLEs use open and often web-based technologies to link learners with materials and services to support their learning, enable the sharing and display of learning, the receiving of feedback from others and the repurposing and adaptation of materials (Wilson *et al.*, 2009; Kop, 2010). Learner-centric PLEs are frequently contrasted with institutional Virtual Learning Environments/ Learning Management Systems (McLoughlin and Lee, 2008; Mott and Wiley, 2009). A PLE is a collection, or gathering, of online platforms and tools assembled to achieve individualised learning. PLEs involve accessing networks of contacts, resources and technologies and these network orientated conceptualisations of PLEs are often referred to as Personal Learning Networks (PLNs). PLEs are a technological manifestation of the 'self-programmable' workers characterised by Castells (2000) as having a higher capacity for change through self-

directed learning. In turn, self-directed learning is made more realisable, visible and collaborative through social technologies (Wagner, Hassanein and Head, 2008) as personal learning networks.

Fournier and Kop (2010) refer to PLNs as affording access to expert informants or More Knowledgeable Others (MKOs). Megele (2014) argues that MKOs are an important component of the processes of learning in a Twitter chat event through growing the Zone of Proximal Development (ZPD) of the event participants. Yet, as I suggested in Chapter 7 of this thesis, the expert/apprentice relationship suggested by Megele does not seem to be present in the discussion of personal learning networks in these chat events. Rather, what is emphasised is the network, its scope and diversity that provides access to alternative perspectives. The emphasis is on different rather than 'better' perspectives.

1.	@sam4412	Q2 Oh, being the introvert I am didn't have PLN until social networking came around! The first 32 years were a little rough
2.	@JulieHeath	My PLN now is nothing like 2007. Was local/F2F. Reaches across continents and many fields/areas of interest.
3.	@aaronloztic	My PN (I refuse to throw in the L) is definitely more virtual but man, nothing loosens up convos like F2F #jackdaniels
4.	@pjshomzie	A2) Twitter addiction getting pretty out of hand - blogs, Google+, etc As learn more PLN expands & changes goes places never imagined
5.	@khyt	Q2) Favorite SoMe channel for learning for me is Skype. Have a fabulous PLN that mostly came from Twitter. :-)
6.	@jonscohanon	a4) I'm sure we all helped someone learn the value of Twitter #PLN #lrnchat
7.	@aaronloztic	q4) I find that the most help I get is from channels and people not necessarily designed to help me
8.	@tulip_wun	LinkedIn Groups was my channel for learning but loving Twitter! My PLN's growing. I'm learning so much in an engaging manner
9.	@LearnLoc	A3 I am constantly and accidentally learning from Facebook by getting exposed to perspectives I'd never consider on my own
10.	@AleshaAndrews	A2) Twitter is really my favorite. The immediacy and flexibility. Serendipity on steroids.
11.	@LearnLoc	A1 - I remember being excited that I found people that shared my career interests that I could learn from everyday

**Table 38: Personal Learning Networks**

In Table 38, tweet 1 asserts a traditional claim on the affordances of online social networking and digital learning: that learners feel more confident in engaging and interacting in online rather than face-to-face situations (Liang and McQueen, 1999; Hamid *et al.*, 2015). In contrast, tweet 3 asserts the conversational benefits of face-to-face interactions by suggesting text based interactions generate a more formal (less 'loose') discursive style compared to oral conversations. The implication of the tweet is that online, text based conversations are less sociable and so, perhaps less valuable for informal learning purposes.

Tweets 2 and 4 give examples of the affordances of social networking sites in terms of Wellman and colleagues's networked individualism that extends an individual's network of contacts from the local to global networks formed around overlapping common interests (Wellman *et al.*, 2003). The reference in tweet 2 to 2007 is notable as this is the year that Twitter was launched and the tweet suggests that this particular technology led to the transformation of this participant's PLN. Thus the dominant discourse of technological determinism is also present in tweet 4's linking of the expansion and change with different technologies used rather than anything to do with the social contexts of the PLN. Tweets 5 and 6 both indicate the perceived importance of the chat event platform, Twitter, in their PLNs. In particular, tweet 6 is one of the few tweets about PLNs that positions them as a vehicle for the learning of others: in contrast, most of the tweets here use the personal pronoun and assert how *they* have learned from *their* networks. Tweet 6 mobilises an additional hashtag of #PLN signalling the tweet as a component in other assemblages of discussions and 'communities' on Twitter that discuss personal learning networks.

Tweet 7 is a more ambiguous tweet in terms of what people and channels are being mentioned and what is meant by them being not “designed to help me”. But the tweet does indicate that PLNs, in terms of their social and technological components, are necessarily intended for learning purposes. This point is reinforced in tweet 9 where there is an assertion of incidental or vicarious learning occurring through Facebook. In the latter case in particular, the inscribed intent of the technologies of Facebook as a social networking site are retranslated as actors in a PLN. These instances of translation are visible representations of what the translating actor values (Latour, 1987 cited in McNerney, 2009, p.212).

This excerpt of tweets produces a normative expectation that to be an effective professional learner involves the assembly of a PLN. The ‘problem’ of practicing ongoing and lifelong professional learning is translated in to the stabilising notion of the PLN assembled by individual practitioners. Thus assembling a PLN is part of the regulatory regime of ‘becoming’ a professional and a component in assemblages of professionalisation. The creation of a PLN is an instantiation of a performance of learning, networking, expertise and the capacities for change associated with the self-programmable worker. The Twitter chat events generate normative expectations that professionals explicitly engage in self-directed and ongoing learning demonstrations of professional competence.

The stabilisation achieved by the notion of the PLN is represented as an abstract simplification of a complex socio-material assemblage. Yet, while the PLN is represented as situated and localised to the individual actor, the notion of the PLN draws on larger assemblages of meaning that are components of emerging and fluid assemblages of professionalism, professional learning and the post-industrial knowledge economy.

## Working out loud

The refrain of 'Working out loud' is a prominent one in the chat events and can be seen as an extension of a PLN. Working out loud (WOL) (Bozarth, 2014; Stepper, 2015), also known as 'narrating your work', refers to practices of sharing and learning through regular updates on daily work (Margaryan *et al.*, 2014). WOL involves not only describing daily work events but also why these events were tackled in a particular way (Bozarth, 2014) and then broadcast to each individual's personal (professional) social networks. WOL is a component of an individual-centric networking approach that elucidates aspects of working practices and displays of 'know how' (Spender, 2005). Margaryan, *et al* (2015) found that the advantages of this approach was in terms of (a) personal learning by promoting self-reflection, (b) enhancing the visibility of the expertise in terms of 'know who' and (c) demonstrating competence and capabilities. As Ross, Terras, Warwick, *et al.*, (2011, p.122) argue, there is "a growing sense that online invisibility equates to personal and professional negligence, and that the more presence the better." So the discourses of the knowledge economy and the 'enterprising-self' are entangled with the materialities of social networking. This entanglement generates normative expectations of online visibility as displays of competence and, therefore, of employability within an increasingly precarious labour market.

The visible activities of WOL entangles practices of reportage of competence and the generation of network visibility through, for example, following/follower and hashtag functions of Twitter that generate traceable data of relations. Rather than necessarily being an intentional act of informal learning (Billett, 2002; Ellinger and Cseh, 2007), WOL is mobilised as a "seamless web of tacit, taken for granted socialisation" (Livingstone, 1999, p.2). WOL, or 'narrating your work' is a fluid assemblage with the capacities



for generating learning effects. But the practices of WOL emphasise displays of competence or expertise through, for example, the use of ‘instructional talk’ as discussed later in this chapter. Thus, WOL avoids the political dimensions of being labelled as a learner and by implication not being a fully functioning professional (Thompson, 2010) by amplifying the reportage of competence and expertise.

With an emphasis on displays of knowledge-in-practice, WOL is a performance of the new forms of professionalism. This involves displays of employable value through demonstrating competences in professional practices including learning from others and demonstrating membership of particular professional networks. This relationship between the personal ties between participants and the circulation of knowledge can be visualised in the ‘tight crowd’ (Smith, *et al*, 2014 ) of the chat event communities. So WOL is also a component of the performance of ‘knowing how to know’ (Edwards, 2010, p.30) necessary for the self-programmable professionals of Castell’s network society.

The notion of WOL and ‘narrating your work’ as promoting self-reflection and as a demonstration of professional learning is often mobilised in the chat events. The chat events present work and learning as intimately entwined with one another:

1.	Learn out loud benefits view ideas from a different viewpoint learn different ways to do something changes your perspective
2.	A5 Learning out loud is awesome when someone else picks up on it and gives feedback.
3.	That's what we do... All day. But it beyond the tools. Its a new way of working. #workingoutloud
4.	Even when teaching I can learn so much from my students - learning out loud can elevate the entire conversation #
5.	Learning out loud is what the Internet was based on. If your only one with idea, and you go away, idea dies. #

6.	exposed to information you weren't necessarily looking for or knew existed
7.	showing your work makes the idea stronger and more sustainable #
8.	A5 learning out loud help me find clarity myself and helps others know where I might need some help
9.	Q5 HUGE benefit to learning out loud, honest criticism of nascent ideas refines thought. can't be sensitive, must open to learn
10.	Q6) Avoid the filter bubble. SoMe is your opportunity to learn from the world. Go off the beaten path #

**Table 39: Working Out Loud**

In this excerpt of tweets (Table 39), the benefits from working out loud are often articulated in terms of receiving direct feedback or additional information (tweets 1, 2, 4, 6 and 9) and accessing a diversity of viewpoints (tweets 1, 4 and 10). While tweets 1, 5 and 9 refer explicitly to 'learning out loud', all the tweets here discuss WOL as a mechanism for their individual learning.

Tweet 3, understands learning as being enmeshed with and in daily work activities. Learning is not an event-based practice but rather a constant and relational practice that is achieved as a collective activity. This tweet also notes the practice as a component of professional group identification:

"That's what we do ..."

Meanwhile, tweet 4 expands on the idea of learning being achieved through dialogue and conversation that technologies preserve as text or artefact and make searchable, retrievable and reuseable. Although there is an implicit hierarchy where the author of the tweet is the teacher in possession of *their* students: the conversation is understood as between a teacher and their students rather than between a collection of peers. The notion of rendering conversations as tangible artefacts is seen in tweet 5 as ensuring that ideas are preserved. As noted elsewhere, there is an assumption in such remarks that knowledge can be simply transferred in explicit forms without any effect on

that knowledge. Rather, knowing-in-practice is an embodied intra-action of tacit and explicit knowledge whereby transfer cannot be separated from situated action. Yet what is presented in the chat events is explicit reportage of situated professional practices and so can only ever be a partial representation of those practices.

1.	We lrn frm each other, we use tech to communicate w/each other. Texting and tweeting are bite sized learning.
2.	A2) Example how tech drives learning? This. I have access to all of yr creativity, now + most of time when I ask
3.	RT @weisblatt Open up the conversation about what learning can be. // Quite, as we are doing here!

**Table 40: Learning and role modelling**

In Table 40 is a short excerpt of tweets presenting WOL as a professional obligation (tweet 1), and as a role to be modelled in general (tweet 2) and more specifically as modelled in these Twitter chat events (tweet 3). WOL is positioned as an expectation of the practices of HRD professionals in general and participants in these chat events especially.

WOL or ‘narrating your work’ can be seen as a form of Bandura's (1977) role modelling such that the content of the ‘narration’ and the practices of ‘narrating’ are performances of idealisations of the self-programmable worker/ learner. Through WOL social technologies have the capacities to generate the disciplining effects associated with the generation of regulatory regimes within a professional domain.

The realisation of WOL and personalised learning is presented as entangled with online, digital and social technologies. In Chapter 6, I argued that the trajectories of development of HRD as a profession were enmeshed with

technological determinism, here I argue that the enactment of processes of professional learning are also predicated on a technological determinism.

## Learning as technologically determined

In Chapter 6 (see the section on ‘Technological determinism’) I argue that digital technologies are presented as irrevocably entangled with HRD practices and are an important component in the determination of the scope of the professional domain. In this section, I analyse how the entanglement of digital technologies and learning discourses are naturalised, co-constituted and mutually beneficial.

The entanglement between learning practices and digital technologies is frequently presented in terms of technological determinism. Technological determinism positions technological change as ‘the’ driving force of social change (Potts, 2008). Technological, or any form, of determinism is predicated on the reductionism and simplification that Latour (2005) and Law (2003) seek to avoid in their arguments in favour of actor-network and After ANT assemblage theory. From this theoretical stance, social and material technologies emerge from complex intra-actional relations. Technology is not simply embedded in to notions of ‘good’ or effective learning practice but is, rather, presented as an active agent in the development of such practices.

Figure 36, presents a graphical representation of the relationship between prominent collocated keywords on learning in one Twitter chat event from chat series A. This representation indicates the closeness of the relationship between learning and technology as reported in the chat events. The collocates of ‘technology’ such as ‘driven’, ‘drives’ and ‘driving’ suggest the deterministic relationship between technology and learning processes. The figure also demonstrates the closer relationship of social media, ‘SoMe’, and

'Twitter' with WOL as indicated by 'loud'. The relatively reduced prominence of 'learners' suggests that the chat events are more concerned with processes and outcomes of learning rather than the individuals doing the learning. Finally, the modal verb of 'should' mobilises an interesting relationship of obligation between 'SoMe', 'Learning' and 'technology'.

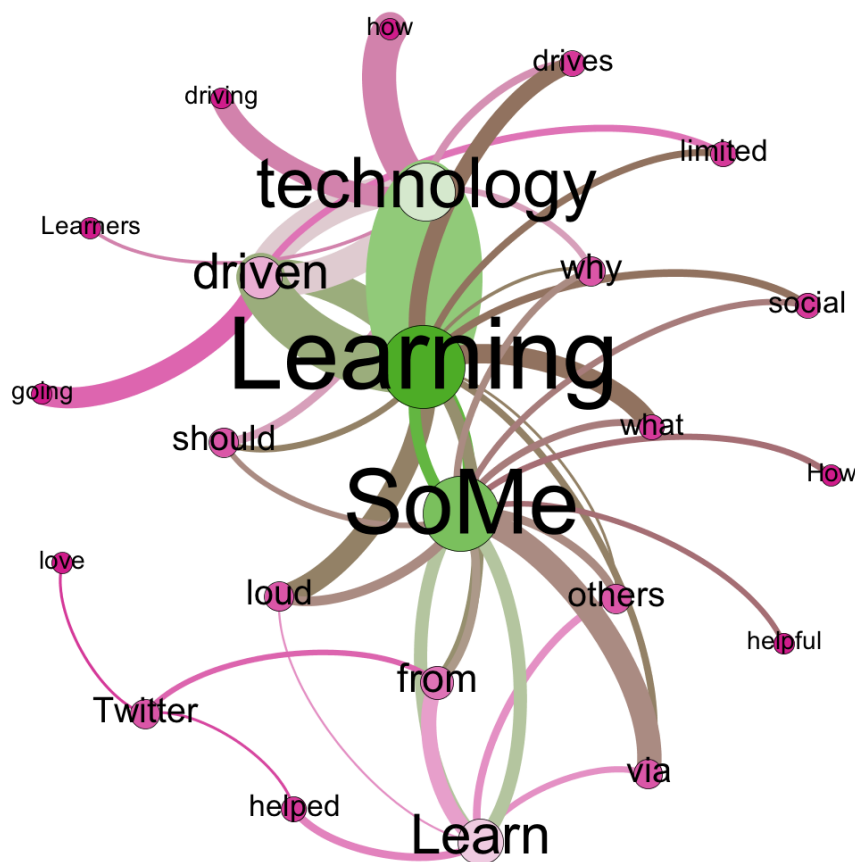


Figure 36: Keyword collocates

The mobilisation of modal verbs highlight the regulatory and disciplinary effects of the tacit pedagogy of the chat event assemblages (Edwards *et al.*, 2004). Drawing on Foucault's notion of governmentality, the modal obligations enunciate a particular normative expectation of the conduct of participants of the chat events (Dean, 2010). Modal verbs are mobilised to

generate expectations that effective HRD practitioners *should* be technology driven, adaptable and flexible, working and learning openly and ‘out loud’ and focused on enhancing organisational performance rather than delivering off-the-job training courses. Foucault’s notion of governmentality identifies these modal obligations as disciplining effects that generate “regimes of practice” (Dean, 2010, p.31). So these modal obligations go beyond signifying potential ‘best practices’ to, rather, create normative requirements of the professional field of HRD. These expectations drive the definitions of the professional domain of HRD discussed in Chapter 6. The ‘regimes of practice’ are co-constituted with the key forces identifiable with new capitalism, technological determinism, acceleration and the need to continually justify their employability within the market-place of the HRD professional domain.

In the Twitter chat events, the entanglement of particular discursive actions and structures with the relational functions of the chat events generate particular “regulation of conduct in practices” (Nicoll and Fejes, 2011, p.406). In this case, regulatory expectations are mobilised around the dominant discourse of the knowledge economy as privileging networked individualist learning strategies operationalised through practices of ‘narrating your work’/ WOL via social technologies. Therefore, learning to ‘be’ a participant in the chat events is achieved through ceaseless and fluid regimes of practice that shape norms of conduct. The expected professional practices are enacted and re-enacted in each, and between each, chat event as unending processes of participants positioning and repositioning themselves as professionals and, therefore, professional learners.

Overall, the chat events mobilised discursive repertoires that identified learning professionals and practices as facing the challenge of being ‘relevant’ and employable and that ‘technology’ is the main means for them to address

that challenge. Professional learning is made easier through the ongoing technological changes that are mobilised to drive the demand and expectations for continuous and visible professional learning.

## Assembling learning

Assemblage theory collapses the distinctions between discourses, texts and technologies and between micro and macro-level discourses (Abildgaard and Nickelsen, 2013, p.70). As noted in Chapter 2, the Twitter chat events enable us to trace the dynamics of learning (Fenwick and Landri, 2012) as they pertain to both the trajectories of socio-economic and technological change and the trajectories and interactions of specific discursive actions. The assemblage of the Twitter chat events involves a diversity of means of social ordering (Law, 2004) that, in this case, involve the entanglement of issues of professional identification and professionalism with the structure and styles of interactions in the chat events.

### Discursive structures

A repeated refrain emerging in the descriptions and analysis of the Twitter chat events is on the importance of interaction and dialogue for learning. Yet, as I have discussed in Chapters 8 and elsewhere (Evans, 2015), the evidence of direct dialogue in these events is limited.

The chat events displayed very few markers of an expected 'educational' discursive structure comprised of an *initiation* statement, followed by a *response* from the 'learners' which, in turn, generates *feedback* from the teacher or authority figure (Bloome *et al.*, 2005). The paucity of this discursive structure can be seen in the both in the lack of direct and explicit interactions identified using markers of addressivity (Honeycutt and Herring, 2009) and

Discourse Structure Analysis (DSA) (Holmer, 2008). Also, validating statements using Belnap and Withers (2008) content analysis categories that suggest some form of dialogue between participants are rarely observed in the chat events. As I have argued earlier in this thesis, the Twitter chat events can be characterised as ‘serial monologues’ (Pawan *et al.*, 2003; Honeycutt and Herring, 2009) rather than dialogues between participants. The concept of serial monologues suggests a limited degree of discursive coherence: participants make statements without reference to the content of others and often with only partial relevance to the initiating question. This sense of incoherence and fragmentation of the events is reinforced when viewing the chat events in a single timeline that consists of sequences extending over many exchanges; overlapping exchanges and sequences; short sequences tending to be cut off prior to a conclusion; and sequences re-emerging later in discussions.

However, participants do use a range of strategies to address this apparent instability that can generate some temporary ordering effects on the chat events. The strategies include the mobilisation of the retweet and the reply functions of Twitter but also the inclusion of the question number in the responding tweet. In the following section of this chapter, I analyse how these discursive strategies and functions of Twitter generate conversational floors (Simpson, 2005) that translate the initiating tweets and temporarily stabilise a trajectory of the discussion.

### Conversational floors and coherence

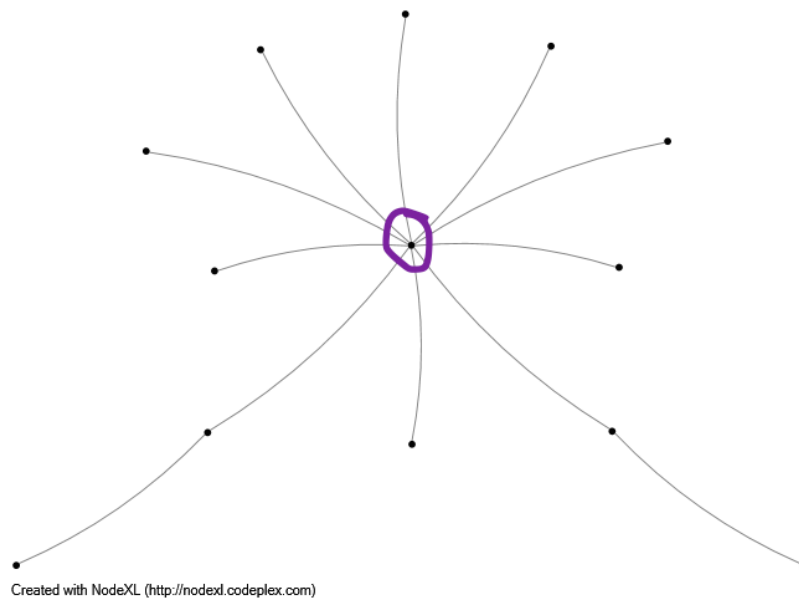
Simpson refers to conversational floors in terms of establishing cohesion and coherence in discourse (2005, p.338). Individual utterances interact with one another to build patterns of sequences of exchanges that can be characterised as conversational floors (Simpson, 2005, p.337) to establish the topic of the



conversation. The generation of conversational floors in the chat events involves the mobilisation of particular discursive strategies and of particular functions of Twitter. In terms of the latter, the functions in Twitter associated with addressivity (Honeycutt and Herring, 2009), especially the reply and retweet assemblages, are particularly prominent.

The most straightforward example is the mobilisation of the retweet to mark the shift from one set event question to the next. As was discussed earlier in Chapter 5 (see the section: 'Overview of the Twitter events'), the event Twitter account will post pre-set questions at regular intervals during the event. Yet, these pre-set questions are only tweeted once and, given the pace of the events, could be missed by the participants. So once a new question has been posted, it is frequently retweeted to establish that question as the conversational floor of the next phase of the chat event. Additionally, many participants indicate which question that are answering with the marker of A1, A2, A3, or Q1, Q2, Q3, etc.

Figure 37 presents the retweets of a single initiating question circled in the centre of the diagram in one of the chat events.



**Figure 37: Retweets of an initiating question**

To generate a change in the trajectory of the chat event, the initiating question is directly retweeted ten times. Two of these direct retweets are then retweeted themselves. This pattern suggests that after the earlier ten retweets the initiating question had not been entirely taken up in the chat event timeline, and so the question had not been unambiguously established as the conversational floor for the event.

Dialogical learning

Figure 38 presents one of the longest exchange sequence of the total sample of Twitter chat events of this study.

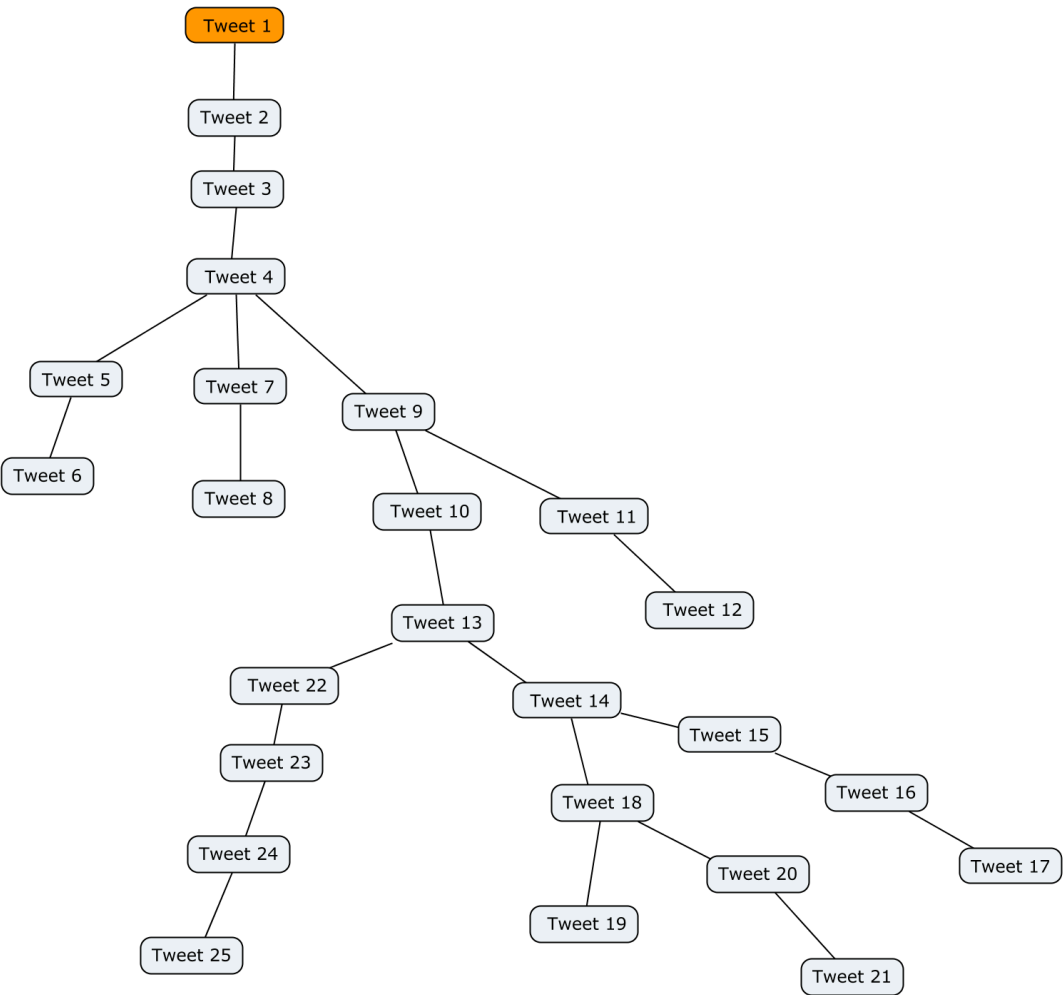


Figure 38: Extended branch sequence

This set of interactions was identified using Honeycutt and Herring’s (2009) markers of addressivity: user mentions mobilised through the retweet and reply functions of Twitter. The content of the sequence is detailed in Table 41:

1.	@ChatB	How can crowdsourcing assist learning? Personal examples?
2.	@htuner	a challenge of crowdsourcing in organizations is getting others to participate
3.	@liftpitch	RT@htuner a challenge of crowdsourcing in organizations is getting others to participate // experiencing it with Yammer
4.	@htuner	@liftpitch We use Yammer ... and I spend a lot of time offline encouraging others to join
5.	@liftpitch	Getting ppl to participate, or keeping ppl participating?
6.	@htuner	RT@liftpitch Getting ppl to participate, or keeping ppl participating? // keeping
7.	@htune	@liftpitch although we are getting some momentum on Yammer with a Senior Exec support
8.	@joescarpickhard	@htuner I have not used Yammer - can't really imagine it
9.	@greencat	@htuner You have Yammer? Who let that in the door :)
10.	@htuner	@greencat clever salesmanship! Yammer vs Twitter is more secure
11.	@ujohnu	Wells its NOT in the door right? RT @greencat You have Yammer? Who let that in the door :)
12.	@htuner	Correct RT @ujohnu Wells its NOT in the door right? RT @greencat You have Yammer? Who let that in the door :)
13.	@htuner	Our IT dept agreed Yammer as secure as email
14.	@tabitha456	Yammer was reluctantly approved but not used. Ppl don't understand it
15.	@joescarpickhard	@tabitha456 Maybe why it's not be used, - "reluctantly"
16.	@greencat	To get people on board w. Yammer, make it non-work related. Then people will slowly get it
17.	@ujohnu	@greencat Could non-work lead ppl to not see value in the weather and lunch reports?
18.	@pweplo	RT @tabitha456 Yammer was reluctantly approved but not used. Ppl don't understand it// needs a champion
19.	@joescarpickhard	@pweplo agree on the champion idea! BIG YES
20.	@htuner	@pweplo we've done a lot of offline marketing encouraging Yammer usage
21.	@pweplo	@htuner we've done a lot of offline marketing encouraging Yammer usage // Takes training & make safe
22.	@RoberBasket	RT@htuner Our IT dept agreed Yammer as secure as email
23.	@liftpitch	RT @RobertBasket RT @htuner Our IT dept agreed Yammer as secure as email. // Small Biz?
24.	@htuner	@liftpitch pretty small, but nationwide
25.	@liftpitch	@htuner Thanks. Tuff nut to crack at my big org, maybe better with small biz .. wrk close w IT

**Table 41: Extended dialogue**

The sequence is initiated in tweet 1 (Table 41) as a question from the official chat event Twitter account. This is followed by some 118 tweets in the time line of the event before the next tweet in the sequence. These other tweets

include responses to earlier tweets and retweets of the initiating question. Preceding responses to the initiating question included discussion of specific technologies as affording learning through crowdsourcing. Tweet 2 was the first response to that initiating question and was retweeted in tweet 3 with the addition of the mention of a specific microblogging product, Yammer<sup>36</sup>. The subsequent retweet of tweet 4 initiates a range of direct responses and establishes the issue of bringing Yammer into an organisation as a conversational floor and a temporarily stabilised translation of the initiating question. From tweet 4, a further 21 tweets are generated across the different threads of interactions.

The subsequent tweets included exchanges of contextual information on whether other participants' workplaces were introducing Yammer (tweets: 8; 9; 13). The dominant discourses of the chat events on technological determinism, the knowledge economy and the fetishisation of speed are not mobilised in these sequences. However, the discursive structures of the participants' limited agency against a disabling 'other' can be seen here: tweet 14 talks of Yammer being 'reluctantly' approved by 'IT' and it is this reluctance that is cited as a possible reason for the slow take up of the technology within the organisation in tweet 15. In contrast, tweet 16 suggests a tactic that will lead to 'people' realising the value of Yammer in the workplace. The implication being that the participants of the chat event already understand and appreciate that value: that they are not slow at putting two-and-two together in the way that 'people' are. What the specific value of Yammer may be, what it does and why that should matter to potential users is unexamined. Rather Yammer is treated as a self-explanatory and unproblematic technology of clear value.

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<sup>36</sup> [www.yammer.com](http://www.yammer.com)

Tweet 18 offers specific advice on implementing the technology through using a workplace champion. Although what the champion should or should not do is not mentioned, this idea is supported in tweet 19. Tweet 18 also leads to the advice on utilising a lot of non-digital marketing of Yammer in tweet 20 which is countered in tweet 21 with an assertion of the importance of training and making Yammer 'safe'. This idea of safe is not explained and echoes earlier assertions that Yammer could be is a secure channel of communications (tweets 10 and 13). Thus the discourse accepts both the social and situated components of bringing in a new technology to an organisation. Yet the effects on that organisation of introducing Yammer are backgrounded: there is an assumption, articulated in tweet 9, that the technology is necessarily beneficial and something to be envied. Only tweet 8 expresses reservations although they are framed in terms of ignorance of the software and how it might be used.

This extended sequence demonstrates how conversational floors may be generated through the mobilisation of the functions of Twitter, especially the retweet function, and the use of specific communicative actions to generate and stabilise a particular translation of the initiating question. In this case, the initiating question asking for personal examples of how crowdsourcing may assist workplace learning has been translated, temporarily and partially, as the decision to use and implement a particular micro-blogging software, Yammer.

The translation of the discussion topic has been accomplished through communicative actions and structures that maintain a sense of conversational coherence. Direct responses, such as replies and retweets, are used frequently that generate hyperlinks, or data traces, between the authors of the related

tweets, the tweets themselves and the tweet content. Hence textual and data links are produced simultaneously which can generate a stronger sense of coherence. As the relevant tweets are located between other tweets and alternative sequences in the chat event timeline, so the content of the tweets alone may be insufficient to establish coherence. Hence the combination of the ideational content with the Twitter user name generates a partial and temporary stabilisation of the sequence as a conversation.

Many of the tweets in this sequence make use of a common discursive structure by repeating the preceding tweet and then extending that tweet with a comment (the division between the original tweet and the extending remark is often indicated by “//”): see, for example, tweets 3, 6, 21 and 23. The extensions may be articulated as assertions: “needs a champion” (tweet 18); or statements of professional experience: “we’ve done a lot of offline marketing to encourage Yammer usage” (tweet 21) or as suggestions, opinions or evaluations: “Could non-work lead ppl to not see value in the weather and lunch reports?” (tweet 17). Hence the retweet function performs as Law’s (2009) ‘mutable mobile’ that reconfigures itself and has multiple potential capacities - to restate, to provide coherence or to contextualise an evaluative statement.

The sequence of tweets demonstrates a gathering of additional components in the assemblage of the chat events. In gathering the tweets into a sequence, the cumulative expansion of the text detail can be seen to facilitate the exchange of explicit knowledge or experiences of similar implementations of technologies in organisations. Tweets 3, 4, 5, 7 and 14 assemble aspects of the ‘problem situation’ that generates suggested responses in tweets 15, 16, 17, 18, 19, 20 and 21. Yet, the stability of the interactions here rapidly breaks down and the learning stutters and fails. The Twitter chat moves on and the

sequences are not resolved in to a coherent and explicit intention for action in the workplace assemblages of that ‘problem situation’.

Hence, it is through an interplay of communicative actions, textual practices, software functions and discursive functions that generates a sense of dialogue between participants through establishing temporary stabilisations of the chat topic as particular and often focused translations of the initiating tweets.

However, there is an overall lack of markers of addressivity in the Twitter chat events, as discussed in Chapter 4 (see the section: ‘Addressivity’), that suggests that the chat events are structured as ‘serial monologues’. Even in the more conversational sequences such as in Figure 38 above, the interactions show little evidence of a clash of ideas or alternative viewpoints. Rather, the discussions evolve in smaller incremental additions to preceding utterances. These aggregate as stabilisations of conversational floors that act as collective positions or stances (Megele, 2014) and are reminiscent of a form of cumulative talk. Rather than the *initiate-respond-follow-up* model of educational discourse, the chat events generate discourses that amplify displays of competency and expertise accomplished as cumulative and instructional talk.

### Cumulative talk

The concept of ‘cumulative talk’ can be found in Mercer’s (2004) study of classroom discussions among children. The concept draws on a sociocultural framing of learning processes in relation to knowledge-building. In that paper, Mercer develops a typology of classroom interaction as (1) disputational, characterised by disagreement; (2) exploratory, characterised by challenges and justifications as explicit and visible knowledge building;



and (3) cumulative, characterised by uncritical but positive building on the ideas of others.

Mercer (2004, p.149) describes the features of cumulative talk as:

*There is no dispute and both participants contribute ideas which are accepted. We can see repetitions, confirmation and elaborations. The interaction is cooperative, but there is no critical consideration of ideas.*

This discursive style can be seen in the sequences in Table 41 and reflects the dominance of Building and Continuation (Belnap and Withers, 2008) utterances discussed in Chapter 5 (see the section: ‘Content analysis’).

The production of cumulative talk creates an ordering effect through discursive structures that privilege the incremental refinement of common understandings. Cumulative talk simultaneously generates stability through what Mercer called a ‘contextual foundation’ (2004, p.140) of discursive stances that identify event participants as ‘being’ established professionals of a recognised domain of practice. At the same time, cumulative talk generates fluidities as discursive stances are being constantly developed and re-developed through demonstrations of the specific competences of those participants.

Instructional talk

A common style of tweet is the use of ‘instructional talk’. For example, in a number of the events, a discursive genre of instructional talk is mobilised to assert or promote the particular espoused norms or constitutive rules of this professional community.

1.	the process of design thinking is the best effort at explaining how the mindset works that's all
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2.	Analyze the root cause of the problem
3.	Talk to people most impacted by the problem
4.	Know your arsenal of gadgets and think of how to creatively apply them to the challenge at hand
5.	Talk to lots of people ... Come out of the L+D silo

**Table 42: Instructional talk**

Table 42 shows a series of emphatic statements on how to implement design thinking. For example, tweet 1 makes use of the phrase “...that is all” implying no other explanation is necessary or possible. Additionally, tweets 2, 3, 4 and 5 are positioned as indisputable statements on how practice ought to be conducted. This didactic genre of ‘instructional talk’ is also mirrored in the ‘serial monologue’ structure of the discussion event sequences discussed earlier in this thesis (see Figure 20; and Figure 35)

The mobilisation of instructional talk functions, as with WOL or ‘narrating your work’, as a demonstration of reported competence and self-presentation as a More Knowledgeable Other (MKO). As discussed earlier in respect of the mobilisation of modal verbs of obligation, instructional talk is a component of the assemblage of normative expectations of the conduct of participants of the chat events.

Both cumulative talk and instructional talk are manifestations of regulatory regimes of practice that mobilise particular trajectories and limitations of professional learning within the given context of the Twitter chat events. These two discursive styles are co-constituted through the interaction of discursive strategies of the event participants with the constraints and opportunities generated by the Twitter platform and its functions.

As a further example of the process of assembling professional learning in these Twitter chat events, I will examine the facilitation of these events.

Facilitation is often noted as an important aspect of effective online learning (Garrison and Cleveland-Innes, 2005; De Wever *et al.*, 2006; Haythornthwaite, 2006; Hsieh and Tsai, 2012; Couros and Hildebrandt, 2016). It is commonly described in terms of a role undertaken by a designated individual facilitator, yet the Twitter chat events do not explicitly have a designated facilitator. As has been described in Chapter 5 (see the section: 'Overview of the Twitter events'), the chat event official accounts contribute pre-set questions over the duration of each event, but otherwise, do not engage in interaction with others. In the following section, I examine how the functions and outcomes of facilitation are generated in the assemblages of the chat events.

### Accomplishing the facilitation of learning

Facilitation can be understood as a necessary function to support self-directed learning and is often undertaken by 'knowledgeable others' (Ross *et al.*, 2014, p.61). Wang, Anstadt and Goldman (2014, p.140) state that:

*Facilitation includes: (1) inspiring active involvement of all members and shaping of their useful roles, (2) attending to the explicit group process, (3) encouraging group communication, (4) summarizing and clarifying content of discussion, (5) acknowledging and connecting thoughts and feelings expressed, and (6) organizing the structure and format of the group.*

These activities of attending to group processes are also ascribed to group 'moderators' who must work to include newcomers to online groups (Singh and Holt, 2013). The facilitation of online learning tends to rely on notions of active visibility (Mazzolini and Maddison, 2007) and presence (Rovai, 2007). Singh and Holt (2013) describe more active facilitation functions as seeking to integrate and synthesise knowledge between contributions and, where such

synthesis is not possible, to highlight such differences. Yet many discussions of facilitation focus on the process concerns of encouraging participation rather than on the coherence and synthesis of the ideational content of online learning events (Aczel, Peake and Hardy, 2008; Ross *et al.*, 2014; Wang, Anstadt and Goldman, 2014).

Drawing on Wang *et al.*'s (2014) six indicators of facilitation, the 'official' chat event accounts generate stunted performances of facilitation. By being limited to the posting of specific questions or requests over the duration of the chat events and by avoiding engaging in direct interaction with the chat participants, the official Twitter account for the event can only really be seen to be organising the structure and format of the events.

While there appears to be no 'presence' of a visible facilitator, active or otherwise, in these events, a number of participants do appear to jointly perform aspects of the role of learning facilitator. The phenomenon of More Knowledgeable Others collectively taking on the role of facilitators of learning has been documented in other open online learning environments, particularly MOOCs (Kop and Fournier, 2011; Ross *et al.*, 2014). Gruzd and Haythornthwaite (2013) demonstrate that self-sustaining online communities do not necessarily require explicit 'leadership'. However, I am arguing that the role of learning facilitator is accomplished through the mobilisation of assemblages of discursive structures and strategies along with particular technical functions of Twitter. As Ponti (2014, p.1627) argues:

*Adopting this focus enables [us] to view human and material agencies as constitutively 'entangled', thus shedding insights into understanding the relationship between actions of facilitation and digital technologies*

Facilitation is thus achieved as the outcome or effect of particular material semiotic entanglements.

Active involvement in the event is encouraged by, for example, supportive retweets:

*Yes! 4 performance supp RT: ... true potential big data is to get better at predictive analytics, than evaluating past*

Or

*RT @... Sometimes a gadget meant for one purpose is very effective in places it wasn't designed for! Great analogy*

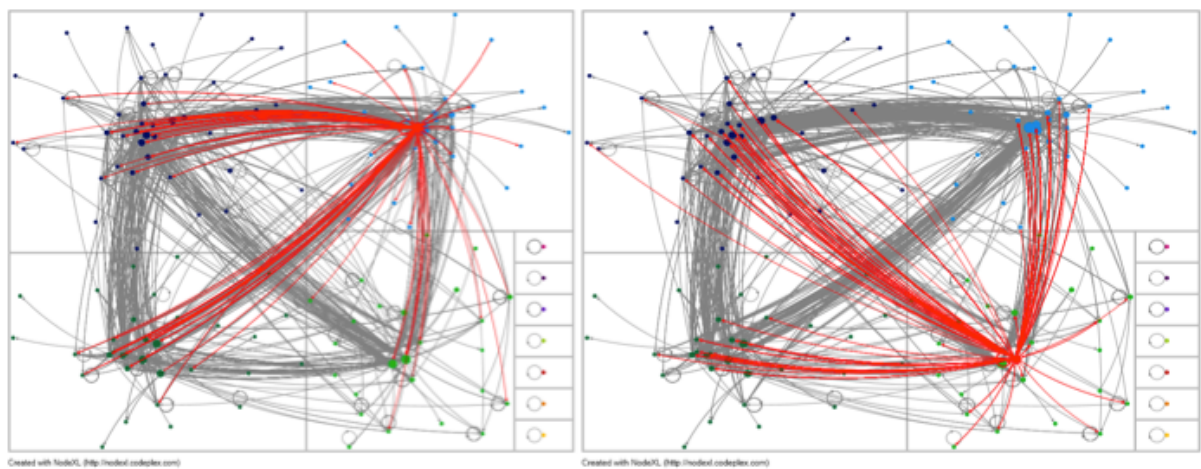
Group processes are attended to by, for example, reminding participants to use the hashtag to be included in the event discussion:

*@NG @OF you have to remember to put in #.... :-)*

Also, when a participant requested a retweeting of the current discussion question as “*I need some level of structure*”, the responding retweets came from other participants. So rather than seeing facilitation enacted by More Knowledgeable Others in master/ apprentice interactions, facilitation is enacted with more of a concern for group processes. Hence being more knowledgeable is less relevant to the act of facilitation. However, aspects of relational positioning within the chat event community is important in accomplishing the effects of facilitation.

In terms of supporting group processes and group communication, social network analysis makes visible how two participants in one of the event series have a crucial role in linking other individual participants and sub-groups within the overall event community. As discussed in Chapter 7 (see

the section: 'Ties and influence'), the two participants presented in Figure 39 produced important effects in generating the circulation and development of professional knowledge (Simons and Masschelein, 2008) in the event community. Both are located in different subgroups of the discussion participants but through mobilising the retweet and reply functions of Twitter are able to link these different subgroups as tightly knit groupings (Smith *et al.*, 2014).



**Figure 39: Networked facilitation**

So these two individual event participants facilitate the overall coherence of the event community by connecting ideas across the community and its different sub-groups. They do so by drawing on different discursive strategies, with one generating linkages between sub-groups through use of the reply and user mention functions of Twitter and so contributing to the incremental development of discursive stances through cumulative talk and attempts to generate conversational floors. The other participant generates a sense of community cohesion through mobilisation of the retweet function of Twitter and made very few direct responses to other tweets or contributed original tweets themselves. The retweets tend to generate very few responses and so, rather than establishing discursive coherence, they appear to be more

concerned with generating a sense of interaction and an impression of a density of network ties via trace data of links between participants. Such network ties may be rendered visible in, for example, the aggregation of notifications on a persons' Twitter home page. By generating repetitions of tweets, this participant also generates a more general sense of "coorientation" (Haythornthwaite, 2015, p.299) towards a topic rather than a more explicit translation and capturing of conversational floors.

But there is little evidence of the active clarifying and summarising of discussions during the course of the events. Some participants did post later reflections on the events on their own blogs as a form of retrospective coherence-making and reflective learning:

*When reflecting on what I learned [during the event], I ...[review] the questions that were asked..."*

Furthermore, some facilitation practices acted to constrain the discussions. For example, including a tweet which asserted the illegitimate status of a particular learning model:

*Can we have another question to keep us from wasting time burying [that model]?*

### Facilitating technologies

While the facilitation behaviours during these discussion events can be seen in the interactions between participants, the discussions are also facilitated by the software services and 'platforms' (Purohit *et al.*, 2013) of Twitter itself. Most obviously, the hashtag function acts to aggregate the tweets as visibly contributing to the event discussions. Small (2011, p. 872) describes hashtags

as “central to organizing information on Twitter” presenting tweets as contributions to the discussion events. So the hashtag performs the facilitation functions of encouraging group communication, clarifying the content of discussion and organising the structure of the group. As Procter, Vis and Voss (2013, p.198) argue, the hashtag function collaborates with the event participants:

*to co-create a fluid and dynamic structure within the tweet timeline that facilitates information discovery*

This co-creation is achieved in “real-time” (Small, 2011, p.874).

Similarly, the user mention functions, including retweeting, act to facilitate the shaping of useful roles of participants, encourage group communication and connecting the thoughts expressed between participants. It is these functions that are used by those key ‘networked’ individuals cited above (Figure 39) to facilitate the structural cohesion of the event community.

Thus the assemblage of the behaviour of the discussion event participants and the functions of the Twitter technologies can be seen to generate a distributed socio-material model of the facilitation of informal online learning. In this model, facilitation is ‘de-centred’ from a humanist-orientation and is, rather, a function of the enactment of the social material assemblage.

## Summary

This chapter sets out how professional learning in the Twitter chat events is produced through different assemblages that generate and re-produce various instantiations of professional learning.



I argue in this chapter that the Twitter chat events constitute professional learning as displays of capacity for change and network expertise that emphasises 'knowing how to know' (Edwards, 2010, p.30). Such capacities are necessary to perform the self-programmable professional of Castells' network society. The chat events promote the concept of the 'enterprising self' as a committed lifelong and networked learner as a means of being a professional in the knowledge economy. At the same time, the chat events are instances of the performance-into-being of a networked and self-programmable professional. In these events, the notion of the 'learner' as deficient in some aspect is overturned: being a recognised professional requires a commitment to ongoing learning. The learning professional is not in deficit but rather is engaged in demonstrating their current and future value to employers and, therefore, maintaining their status and employability as professionals.

The performances of professional competence, expertise and employability are entangled with the functions and constraints of the Twitter platform to generate particular orders of discourse, such as cumulative and instructional talk. My analysis of professional learning in these events shifts away from a humanist orientation to understand learning as a symmetrical accomplishment. Learning is an accomplishment of discursive and technological actions distributed and entangled in a range of social and material actors.

# Chapter 9: Conclusions

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This chapter has three main purposes: to state the contribution of my thesis to understanding professional learning in open online environments in general and the Twitter chat events more specifically; to point towards possible future research possibilities in this area; and to reflect on my experiences of gathering together, over a lengthy period of time, the research assemblage that this thesis constitutes.

## Identifying the contribution

This thesis makes a contribution to the ongoing development of the analysis of Twitter chat events and to understanding HRD as a field of professional practice. My initial motivation in researching these chat events was to investigate phenomena that did not appear to be much researched. My approach to the research processes, through a socio-material, network assemblage lens employing trans-disciplinary and multi-method research approaches, problematises the framing of these events as CoPs (Wesely, 2013; Megele, 2014), a perspective which has dominated research in online professional learning communities. Following Gale, Turner and McKenzie's (2013) argument that socio-material perspectives enrich and complexify our understanding of professional learning and 'becoming', this research positions the Twitter chat events as the relational effects of network-assemblages of human and non-human actants. This novel approach to the analysis of HRD professionalism produces insights on the dynamics of defining a professional field within an open digital environment and on the active role of the material technologies in these dynamics. I argue that the

HRD professionals in these chat events define their profession as a precarious and vulnerable one in the context of new capitalism, technological determinism, acceleration and a privileging of a notion of 'enterprising selfhood'. The technology of Twitter as used in the chat events enacts components of this definition in terms of technological determinism, acceleration and precariousness: the dynamics of the definitions of HRD surfaced in these events are contingent on the mobilisations of the functions of Twitter itself.

My research provides an investigation of how HRD practitioners generate distinct definitions of their professional domain of practice in interaction with one another. This study is original in its investigation of Twitter chat events as sites for the production of the professional domain of HRD. The chat event is an opportunity to capture more natural presentations of 'theories-in-use' in a wide range of practitioner interactions in a manner that interviews, for example, may not be able to achieve (Warren Little, 2002). Rather, interviews and similar research 'genres' tend to repeat 'espoused' theories and examples of practices aligned with established professional knowledge and established expectations of practice (Czarniawska, 2016).

My analysis surfaces how these particular groups of HRD practitioners assemble multiple realities of HRD during the Twitter chat events. The realities surfaced in Chapter 2 of my analysis are entwined with broader discourses of the knowledge economy and the self-programmable knowledge worker. Drawing on McGoldrick and colleagues' (2001) representationalist metaphor of the HRD hologram, I argue that the chat events generate multiple realities of an ideal HRD domain which are often ephemeral and incoherent. Such realities of the HRD domain privilege an autonomous, self-programmable networked learner and practitioner while also emphasising

organisational performance as the primary purpose of HRD practices. So the enacted definitions of HRD shift away from a professional concern with individual development and fulfilling the potential of the individual employee (Gold *et al.*, 2013) to a sole concern with how HRD enhances organisational performance. Learning and development is positioned as the responsibility of that individual as a means of enhancing their employability within increasingly fluid and competitive labour markets. Therefore, the domain of HRD is aligned with a neoliberal capitalist social order associated with of post-industrial economies. Rather than being a site of resistance or deviation, the Twitter chat events function to consolidate this alignment.

Technology is continually discussed in the chat events as generating new trajectories of possibilities in HRD practices and expanding the scope of the professional domain. The chat events themselves are discussed as performances of an open, non-hierarchical and dynamic professional learning that is only possible through social media technologies. Yet, technology and technological acceleration also generate discourses on HRD as a professional domain in crisis, increasingly less relevant to its constituent audiences, clients and customers, locked in to organisational assemblages that cut-off the potential for new trajectories to emerge. Within these chat events, technology is positioned as determining the realities of the post-industrial knowledge economy that are manifested in both the demands from organisations and in the precariousness felt by these practitioners.

The processes of assembling multiple realities of the 'common' endeavour of HRD underpin my problematisation of online community in this thesis. As I argue in Chapter 7, the discursive structures generated in the entangled social, material and semiotic enactments of HRD produce ordering effects associated with notions of 'community'. Yet these ordering effects are co-

present with dynamic instabilities that generate new and alternative repertoires and enactments that disturb the network-assemblage of the chat events without breaking those assemblages apart. My analysis describes online community as being an effect of both material and textual gatherings and network ties between human actors. This broadly posthumanist approach is important in making transparent the role and function of the material technologies, the algorithms, the textual and visual objects in generating these ordering effects. My approach makes visible the material agencies created in assembling, stabilising and destabilising online communities in symmetry with the actions and behaviours of the human participants.

Finally, a prominent theme of the production of the domain of HRD surfaced in this work is that of learning to perform as a certain sort of professional, which involves construction of online community through 'othering'. In territorialising the professional domain, an 'other' HRD is also generated as slow, old fashioned and suspicious or ignorant of technology, especially social technologies. It is this 'other' HRD domain that has produced a profession in crisis as it fails to meet the expectations of management and fails to adapt in response to changes in the business environment. The chat events position themselves as providing the trajectories necessary to resolve this crisis through a new HRD professional. This preferred trajectory of HRD privileges the self-programmable networked worker possessing the adaptive capacities to work at speed and continually experiment with new forms of technology. Therefore, the chat events are sites where new forms of professional identity are assembled in response to the erosion of traditional bases of professionalism. This newer professionalism is reformulated in terms of a networked-individualism of the 'enterprising self'. This reformulation of the HRD practitioner is assembled and performed 'into being' in the chat

events themselves.

My thesis provides a critical contribution in showing how the contested and ambiguous nature of HRD is re-created in the multiple and temporary definitions of the domain that emerge in the Twitter chat events.

Furthermore, these definitions are assembling an idealised HRD practitioner framed within the parameters and imperatives of a post-industrial capitalist order. The professional domain and professionalism that are produced in these events are tightly entwined with the 'enterprising self' rather than with traditional institutions of professional identity. The 'enterprising self' is a passive one, subject to the demands of their employer organisations, their colleagues and of wider economic and technological 'forces' and so must accept and adapt to work intensification and precarious relations of employment. This emergent professional identity is generated in self-organised networks and communities that operate as sites for demonstrating ongoing employability as value-generating and adaptive knowledge workers.

The critical insights of the core arguments of my thesis are generated through an original approach to understanding the dynamics of professional identity-making in the Twitter chat events. The methods-mix created for this thesis provides a novel operationalisation of socio-material assemblage theory that produces critical insights on the dynamics of these Twitter chat events. This methods assemblage that I have pulled together in this study is a key aspect of its originality and does important groundwork for future studies of professionalism as it is enacted within the digital.

## Suggestions for further research

One of the main implications of assemblage theory is that processes of emergence do not stop and that any conclusions to be made by research using this perspective are temporary and contestable. However, I would suggest the following three main themes of further research from this thesis which have emerged as matters of concern and of interest to me.

Since the data for this study was gathered to the end of 2013, the growth of Twitter chat events across a wide range of professional and vocational domains has continued. For example #Edchat<sup>37</sup> and its derivatives such as #UKEdChat<sup>38</sup> #mathchat, #engchat and so forth, have developed a strong profile in the continuing professional development of teachers (McCulloch, McIntosh and Barrett, 2011; Wesely, 2013; Carpenter and Krutka, 2015).

Indeed, the field of education appears to be a professional domain with an extensive field of more than regular Twitter chat events taking place globally (Carpenter and Krutka, 2014). Twitter chat events are also found running in support of specific MOOCs<sup>39</sup> (Massive Open Online Courses) or linked to promotional activities of consultants, trainers and others. These chat events continue to align to the broad structure of the chat events as discussed in Chapter 5 (see the section: 'Overview of the Twitter events'). Indeed, this structure can be seen as a key component of the Twitter chat 'genre'. Hence, a key theme for further research is in to this phenomenon of the Twitter chat events taking a comparative view which explores how the key findings in

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<sup>37</sup> See <http://edchat.pbworks.com/w/page/219908/FrontPage>

<sup>38</sup> See <http://ukedchat.com/>

<sup>39</sup> See for example, #clmooc, <https://clmooc.com/2016/guide-to-social-tools/getting-started-with-twitter-and-twitter-chats/>

relation to HRD compare with other professions. My thesis provides a possible framework for building up a body of analysis of a widening range of chat events and expanding beyond the specific professional domains of HRD using the methods mix pioneered in this study.

A second theme concerns the further investigation of different trajectories of the performative-enactment of the domain of HRD as professional practice. Here, I would look to surfacing the 'theories-in-action' (Czarniawska, 2016) of HRD in socio-material entanglements of situated practice. While socio-material approaches have been applied to workplace learning (Fenwick, Nerland and Jensen, 2012; Mulcahy, 2012; Fenwick and Nerland, 2014; Ackland and Swinney, 2015) there is a distinct gap in socio-material analysis of HRD as a professional domain of practice. Where such studies have been conceptualised, they have focused on virtual HRD (Bennett, 2014; Fagan, 2014). Yet assemblage theory may provide new insights in to HRD professional practices in digital and non-digital enactments through the development of alternative methods-assemblages.

A third suggested theme of further research is in the extension of the methods-assemblage generated in this study and applied to other online professional learning environments. These environments might be other Social Networking Sites such as Facebook (Deloitte Center for the Edge, 2014; Fenwick, 2014; Hope, 2016) or in social media software used within enterprises. These so-called Enterprise Social Media (ESM) are increasingly used for outward facing interactions with customers and vendors, internal communication, learning and knowledge sharing and inter-organisational collaborations (McAfee, 2009; Leonardi, Huysman and Steinfield, 2013). An example of an ESM, Yammer, is discussed in Chapter 8 (see the section: 'Dialogical learning', Figure 38 and Table 41). Given appropriate access, these



environments would provide a rich resource for further mobilisation of the methods-assemblage of my research.

## Assembling the researcher

This section of this final chapter discusses my reflections on my position as a researcher and my use of the specific methods assemblage used in this thesis.

As a researcher, I am working and performing with a particular, fluid and unstable method-assemblage. Presented with an array of textual, visual, multimedia, technological, social and linguistic materials, I enact this material as research data: that is, I identify it as “The stuff I’m focusing on as I explore this phenomenon” (Markham, 2013, no pagination). If method assemblages are co-constitutive, socio-material and fluid processes of knowledge generation, then the notion of research data as stable, independent, collectable and acted upon is impossible.

As practices have no closure, so this research study cannot ‘close’ in a final, representative way. Rather, echoing Richardson and St Pierre's (2005) criteria for quality in qualitative research (see Chapter 4) , my thesis:

*...seeks to compel, relate, or explore, understanding the inherent open-endedness of this act in contextual space and time. The key would be to add transparency, acknowledging that one is engaging in sense-making rather than discovering or finding or attempting to classify in a reductionist sense (Markham, 2013, no pagination).*

So in the iterations of rendering and re-rendering the collected material, analysing that 'data' and writing up my findings, I was seeking to generate research that was credible and trustworthy (Eriksson and Kovalainen, 2008).

In working with and in my methods-assemblage, I was also engaging in selecting, ignoring or 'amplifying' particular realities or data to generate "findings of interest" (Law 2004, p.38). My key internal debate as a researcher was which aspects of the research material to amplify and which to, in effect, suppress: an academic version of Schwartz's paradox of choice (Schwartz, 2016) exacerbated by the strong sense of doubt created by increasing knowledge and understanding of a subject<sup>40</sup>.

It was in attempting to reconcile the imperatives of conducting trustworthy or credible research while acknowledging that I was selecting some components of the research while suppressing others that I was drawn to the notion of multiple realities (Law, 2004; Jackson and Mazzei, 2012; Harman, 2014). Through this understanding, I become more comfortable that I could never address all possible realities enacted in the research material I had collected. I could frame my analyses as not just avoiding the complexities of 'messy' social reality but, rather, as acknowledging the multiple other realities being assembled and explicitly stating that I am investigating *these* realities only.

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<sup>40</sup> Similar to the so-called Dunning-Kruger effect described as a bias whereby the less-competent assess their abilities much higher than they are. The opposite effect can also be seen whereby the more competent under-estimate their abilities ([https://en.wikipedia.org/wiki/Dunning-Kruger\\_effect](https://en.wikipedia.org/wiki/Dunning-Kruger_effect))

In territorialising the realities of my research, I followed Mitev (2009, p.18) who used 'bigger' discourses to understand the processes of the translation in the Actor-Networks she was investigating. Similarly, I engaged in an iterative processes of engaging with wider discourses of, for example, organisational management, professional identity, technology, knowledge, information and the network society, to interpret specific communicative acts in the chat events. Through this iterative process and reflecting on my analysis, I eventually settled on the three dominant discourses: on the knowledge economy and networked society; on the fetishisation of speed; and on technological determinism. It is largely these discourses that framed what were and what were not 'findings of interest' as they linked to what was driving the HRD practitioners to identify their profession as being in a state of crisis.

The assemblages of the Twitter chat events and my research processes were in constant states of emergence and 'becoming' and hence, never concluding. Yet, I believe this thesis assemblage has resulted in a final, assessable 'product' able to meet the PhD requirements<sup>41</sup> as well as align with the expectations of the supervisors and examiners. My thesis can only ever be, at best, a partial snapshot of a generative assemblage of materials, texts, technologies, practices and actions. The presented thesis is formed, in the end, in the action of stating 'enough' (for now).

Reflecting on my practices as an active researcher, I found socio-materialism and assemblage theory to be helpful ways of framing my understanding of

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<sup>41</sup> PhD regulations can be found at:

[http://www.ed.ac.uk/files/atoms/files/pgr\\_assessmentregulations.pdf](http://www.ed.ac.uk/files/atoms/files/pgr_assessmentregulations.pdf)

my own research practices. Finding spaces for study, free from distractions at home or work, has been a constant negotiation with the emerging demands of small (growing) children generating unexpected intra-actions between assemblages. Different inscribed devices were enrolled in to the processes of research from pen and paper, whiteboards, the world wide web, books, papers, draft chapters, conference interactions, journal paper requirements, reviewer feedback, online tools, word processing software, spreadsheets and spreadsheet templates, network analysis software and qualitative data analysis software and finally Twitter, the Twitter API and Tweet Archivist. These same devices are enrolled in to assisting in homework, doing 'the day job', teaching, organising holidays and so forth. All devices, practices and materials had the potential to be drawn in to different network-assemblages.

As my research progressed, I became more aware that the technologies and devices, knowledge and ideas initially assembled for the purposes of completing my research were also increasingly shaping that research. The scope of what I could analyse was predicated on the data captured in the Twitter API through Tweet Archivist and exported in to Microsoft Excel. I was then required to manually follow the urls embedded in tweets to capture other data and capture that data in stable formats. So the dynamic and fluid online world was rendered static at one specific point in time, often in the form in PDFs. Furthermore, Excel spreadsheets had to be 'tidied' to be analysable within that software and to provide usable data for other technologies such as NodeXL, Gephi or NVivo. As my familiarity with socio-material theories and literature grew, so did my appreciation of the processes of assembling, disassembling and reassembling data. I became less concerned with the idea that such 'manipulation' of the data was inherently wrong or deceitful, but was, rather, part of the research process and something to be clear and explicit about. Hence the complexities and patterns that can be

surfaced and emphasised in my research data (Markham and Lindgren, 2012) emerged from the interplay of data, technologies, models of analysis and my reflective practices. The patterns surfaced in the research emerged through iterative and critically reflective practices. Repeated cycles of critical reflections on and reshaping of the analysis framed by the core research questions enabled continued attention to what the socio-material entanglements of the Twitter chat events were doing: how they generated particular performative enactments of professional knowing and belonging.

Overall, this thesis will generate new possibilities and new trajectories of research and scholarly practice for my field and for me as a researcher-in-practice.

# References

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- Abildgaard, J. S. and Nickelsen, N. C. M. (2013) 'Making Materials Matter – A Contribution to a Sociomaterial Perspective on Work Environment', *Nordic Journal of Working Life Studies*, 3(4), pp. 63–84.
- Ackland, A. and Swinney, A. (2015) 'Material matters for learning in virtual networks: a case study of a professional learning programme hosted in a Google+ online community', *Research in Learning Technology*, 23(1063519), pp. 1–14.
- Aczel, J. C., Peake, S. R. and Hardy, P. (2008) 'Designing capacity-building in e-learning expertise: Challenges and strategies', *Computers and Education*, 50(2), pp. 499–510.
- Adams, C. and Thompson, T. L. (2014) 'Decoding the encoding of research practices \*', Paper presented at the Ninth International Conference on Networked Learning, Edinburgh, Scotland. Available at <http://www.networkedlearningconference.org.uk/info/confpapers.htm> [Accessed: 20 September 2016].
- Alcadipani, R. and Hassard, J. (2010) 'Actor-Network Theory, organizations and critique: towards a politics of organizing', *Organization*, 17(4), pp. 419–435.
- Allen, S. (2012) 'The materiality of knowledge production', *Journal of Comparative Research in Anthropology and Sociology*, 3(1), pp. 31–51.
- Alvesson, M. (1993) 'Organizations as Rhetoric: knowledge-intensive firms and the struggle with ambiguity', *Journal of Management Studies*, 30(6), pp. 997–1015.
- Alvesson, M. and Skoldberg, J. (2009) *Reflexive Methodology: new vistas for qualitative research*. London: Sage.
- Anderson, B. (2006) *Imagined Communities: Reflections on the Origin and Spread of Nationalism*. 3rd edn. London: Verso.
- Anderson, C. (2006) *The Long Tail: Why the Future of Business Is Selling Less of More*. New York: Hyperion.
- Anderson, T. (2016) Emergence and Innovation in Digital Learning: Foundations and Applications. In: G. Veletsianos, (ed.), *Emergence and Innovation in Digital Learning: Foundations and Applications*. Athabasca, AB: Athabasca University Press. pp.35-50.
- Anderson, V. (2017) 'Criteria for Evaluating Qualitative Research', *Human Resource Development Quarterly*, 28(2), pp. 125–133.
- Androutsopoulos, J. (2008) 'Potentials and Limitations of Discourse-Centred Online Ethnology', *language@internet*, 5. Available at:

- [http://www.languageatinternet.de/articles/2008/1610/index\\_html/?searchterm=None](http://www.languageatinternet.de/articles/2008/1610/index_html/?searchterm=None). [Accessed: 12 January 2013]
- Antonacopoulou, E. (2006) *Learning-in-Practice: the social complexity of learning in working life*. Advanced Institute of Management Research Paper No.033.
- AoIR (2012) *Ethical decision-making and Internet research 2.0: Recommendations from the aoir ethics working committee*. Available at: <http://www.aoir.org/reports/ethics2.pdf> [Accessed: 2 March 2013].
- Asgeirsdottir, B. (2005) 'OECD work on knowledge and the knowledge economy', in *Proceedings of the OECD/ NSF conference on Advancing knowledge and the knowledge economy*. Available at: [http://www.flasco.edu.mx/openseminar/oecde\\_downloads\\_knowledge\\_speech.pdf](http://www.flasco.edu.mx/openseminar/oecde_downloads_knowledge_speech.pdf) [Accessed: 7 November 2016].
- Atkins, J. (2013) 'The YIN and YANG of learning and development', *ITNOW*, 55(1), pp. 43–45.
- Bakardieva, M. (2003) 'Virtual togetherness: An everyday life perspective', *Media, Culture and Society*, 25, pp. 291–313.
- Bakhtin, M. M. (1986) *Speech Genres and Other Late Essays*. Austin TX: University of Texas Press.
- Bandura, A. (1977) *Social Learning Theory*. Englewood Cliffs, NJ: Prentice Hall.
- Barad, K. (2003) Posthumanist performativity: toward an understanding of how matter comes to matter, *Signs*, 28(3), pp. 801–831.
- Barad, K. (2007) *Meeting the Universe Halfway: Quantum Physics and the Entanglement of Matter and Meaning*. London: Duke University Press.
- Barden, S. (2013) *Learning transformation in action: eight key trends*. Available at <http://leolearning.com/2013/09/learning-transformation-in-action-eight-key-trends/> [Accessed: 12 May 2016].
- Barnes, S.J., and Bohringer, M. (2011) 'Modelling Use Continuance Behaviour in Microblogging Services: The Case of Twitter', *Journal of Computer Information Systems*, 51(4), pp.1-10.
- Bax, S. (2011) *Discourse and Genre: Analysing Language in Context*. Basingstoke: Palgrave Macmillan.
- Bayne, S. (2004) 'Smoothness and Striation in Digital Learning Spaces'. *E-Learning and Digital Media*, 1(2), pp. 302–316.
- Bayne, S. (2016) 'Posthumanism and research in digital education', in Haythornthwaite, C., Fransman, J., Andrews, R., and Meyers, E. (eds.), (2016). *SAGE Handbook of E-learning Research*. 2nd edn. London: Sage, pp. 82–100.
- Bechky, B. A. (2006) 'Gaffers, Gofers, and Grips: Role-Based Coordination in Temporary Organizations', *Organization Science*, 17(1), pp. 3–21.
- Beighton, C. (2013) 'Assessing the mess: challenges to assemblage theory and teacher education', *International Journal of Qualitative Studies in Education*, 26(10), pp. 1293–1308.

- Belnap, J. K. and Withers, M. G. (2008) 'Discourse Analysis : The problematic analysis of unstructured / unfacilitated group discussions', in *Paper presented at the meeting of the Special Interest Group of the Mathematical Association of America on Research in Undergraduate Mathematics Education*. February. San Diego: Brigham Young University.
- Bennett, E. E. (2014) 'Introducing New Perspectives on Virtual Human Resource Development', *Advances in Developing Human Resources*, 16(3), pp. 263–280.
- Bergquist, M., Ihlström, C., Ljungberg, J. and Åkesson, M. (2008) 'Combining Actor Network Theory and Genre Theory to Understand the Evolution of Digital Genres. Proceedings of JAIS Theory Development Workshop', *Sprouts: Working Papers on Information Systems*, 8(20). Available at: <http://sprouts.aisnet.org/8-20>. [Accessed: 19 April 2015].
- Bhatia, V. K. (2002) 'Applied genre analysis: a multi-perspective model', *Ibérica: Revista de la Asociación Europea de Lenguas para fines específicos (AELFE)*, 3, pp. 3–19.
- Bhatt, I. and De Roock, R. (2013) 'Capturing the sociomateriality of digital literacy events', *Research in Learning Technology*, 21.
- Billett, S. (2002) 'Critiquing workplace learning discourses: participation and continuity at work', *Studies in the Education of Adults*, 34(1), pp. 56–67.
- Billett, S. (2004) 'Workplace participatory practices: Conceptualising workplaces as learning environments', *Journal of Workplace Learning*, 16(6), pp. 312–324.
- Bimber, B. (1990) 'Karl Marx and the Three Faces of Technological Determinism', *Social Studies of Science*, 20(2), pp. 333–351.
- Bingham, N. (1996) 'Object-icons: from technological determinism towards geographies of relations', *Environment and Planning D: Society and Space*, 14, pp. 635–657.
- Bingham, T. and Conner, M. (2010) *The New Social Learning*. San Francisco: Berrett-Koehler Publishers, Inc.
- Business Innovation & Skills (Dept of). (2016) *Success as a Knowledge Economy: Teaching Excellence, Social Mobility & Student Choice*. Dept of Business, Innovation and Skills: London.
- Bloome, J., Carter, S. ., Christian, B. ., Otto, S. and Shuart-Farris, N. (2005) *Discourse Analysis and the Study of Classroom Language and Literacy Events*. Mahwah, New Jersey: Lawrence Erlbaum Associates.
- Borondo, J., Morales, a. J., Benito, R. M. and Losada, J. C. (2014) 'Mapping the online communication patterns of political conversations', *Physica A: Statistical Mechanics and its Applications*. Elsevier B.V., 414, pp. 403–413. doi: 10.1016/j.physa.2014.06.089.
- Bourdieu, P. (1977) *Outline of a Theory of Practice*. Cambridge: Cambridge University Press.



- boyd, d. m. and Ellison, N. B. (2007) 'Social Network Sites: Definition, History, and Scholarship', *Journal of Computer-Mediated Communication*, 13(1), pp. 210–230.
- boyd, d. m., Golder, S. and Lotan, G. (2010) 'Tweet , Tweet , Retweet : Conversational Aspects of Retweeting on Twitter', in *Hawaii International Conference on System Sciences-43*. IEEE. Kauai, HI. 6 January.
- Boyd, N. M. and Nowell, B. (2013) 'Psychological Sense of Community: A New Construct for the Field of Management', *Journal of Management Inquiry*, 23(2), pp. 107–122.
- Bozarth, J. (2009) What I learn from #lrnchat, bozarthzone. Available at: <http://bozarthzone.blogspot.co.uk/2009/10/what-i-learn-from-lrnchat.html> [Accessed: 2 December 2009].
- Bozarth, J. (2014) *Show Your Work: the pay-offs and how-to's of working out loud*. San Francisco: Wiley.
- Bragd, A., Christensen, D., Czarniawska, B. and Tullberg, M. (2008) 'Discourse as the means of community creation', *Scandinavian Journal of Management*, 24(3), pp. 199–208.
- Breuer, R., Klamma, R., Cao, Y. and Vuorikari, R. (2009) 'Social Network Analysis of 45,000 Schools: A Case Study of Technology Enhanced Learning in Europe', in *Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics)*, pp. 166–180.
- Brock, A. (2012) 'From the Blackhand Side: Twitter as a Cultural Conversation', *Journal of Broadcasting & Electronic Media*, 56(4), pp. 529–549.
- Bruns, A. (2012) 'Ad Hoc innovation by users of social networks: The case of Twitter', *ZSI Discussion Paper*, 16(2012), pp. 1–13.
- Bruns, A. and Moe, H. (2014) 'Structural Layers of Communication on Twitter', in K. Weller, A. Bruns, C. Puschmann, and M. Mahrt, (eds.), *Twitter and Society*. New York: Peter Lang, pp. 15–28.
- Bruns, A. and Stieglitz, S. (2013) 'Towards more systematic Twitter analysis: metrics for tweeting activities', *International Journal of Social Research Methodology*, 16(2), pp. 91–108.
- Bruns, A. and Stieglitz, S. (2014) 'Metrics for Understanding Communication on Twitter', in K. Weller, A. Bruns, C. Puschmann, and M. Mahrt, (eds.), *Twitter and Society*. New York: Peter Lang, pp. 69–82.
- Bryman, A. (2008) *Social Research Methods*. Oxford: Oxford University Press.
- Bucholtz, M. and Hall, K. (2005) 'Identity and interaction: a sociocultural linguistic approach', *Discourse Studies*, 7(4–5), pp. 585–614.
- Burt, R. S., Kilduff, M. and Tasselli, S. (2013) 'Social Network Analysis', *Annual Review of Psychology*, 64, pp. 527–547.

- Buscher, M. (2014) 'Nomadic work: Romance and reality. A response to Barbara Czarniawska's "nomadic work as life-story plot"', *Computer Supported Cooperative Work: CSCW: An International Journal*, 23(2), pp. 223–238.
- Cable, V. and Department for Business Innovation and Skills (2014) *Innovation and the UK's knowledge economy*. Available at: <https://www.gov.uk/government/speeches/innovation-and-the-uks-knowledge-economy> [Accessed: 31 January 2017].
- Callahan, J. and De Davila, T. (2004) 'An impressionistic framework for theorizing about human resource development', *Human Resource Development Review*, 3(1), pp. 75–95.
- Callon, M. (1986) 'The Sociology of an Actor-Network: The Case of the Electric Vehicle', in Callon, M., Law, J., and Rip, A. (eds.), *Mapping the Dynamics of Science and Technology: Sociology of Science in the Real World*. London: Palgrave Macmillan UK, pp. 19–34.
- Carpenter, J. P. and Krutka, D. G. (2014) 'Chat It Up', *Learning & Leading with Technology*, (February), pp. 10–15.
- Carpenter, J. P. and Krutka, D. G. (2015) 'Engagement through microblogging: educator professional development via Twitter', *Professional Development in Education*, 41(4), pp. 707–728.
- Castells, M. (1996) *The Rise of the Network Society*. Oxford: Blackwell.
- Castells, M. (2000a) 'Materials for an exploratory theory of the network society', *The British Journal of Sociology*, 1(51), pp. 5–24.
- Castells, M. (2000b) 'Toward a Sociology of the Network Society', *Contemporary Sociology*, 29(5), p. 693–699.
- Chew, C. and Eysenbach, G. (2010) 'Pandemics in the Age of Twitter: Content Analysis of Tweets during the 2009 H1N1 Outbreak', *PLOS ONE*. Public Library of Science, 5(11), p. e14118.
- Chouliarakis, L. and Fairclough, N. (2010) 'Critical discourse analysis in organizational studies: Towards an integrationist methodology', *Journal of Management Studies*, 47(6), pp. 1213–1218.
- CIPD (2013) 'Are we working harder than ever?' Available at: [http://www.cipd.co.uk/binaries/megatrends\\_2013-working-harder-than-ever.pdf](http://www.cipd.co.uk/binaries/megatrends_2013-working-harder-than-ever.pdf). [Accessed: 12 September 2016]
- CIPD (2015) *Learning and Development: Annual Survey*, Annual Survey Report. London. Available at: [http://www.cipd.co.uk/binaries/learning-development\\_2015.pdf](http://www.cipd.co.uk/binaries/learning-development_2015.pdf) [Accessed: 1 February 2017].
- Clarke, T. (2001) 'The knowledge economy', *Education + Training*, 43(4/5), pp. 189–196.
- Cockayne, D. G. (2015) 'Entrepreneurial affect: Attachment to work practice in San Francisco's digital media sector', *Environment and Planning D: Society and Space*, 34(3), pp. 456–473.

- Coffield, F. (1999) 'Breaking the consensus: Lifelong learning as social control', *British Educational Research Journal*, 25(4), pp. 479–499.
- Conaldi, G. and Lomi, A. (2013) 'The dual network structure of organizational problem solving: A case study on open source software development', *Social Networks*. 35(2), pp. 237–250.
- Conover, M., Ratkiewicz, J. and Francisco, M. (2011) 'Political polarization on twitter.', in *Proceedings of the Fifth International AAAI Conference on Weblogs and Social Media*, pp. 89–96.
- Contu, A. and Willmott, H. (2003) 'Re-Embedding Situatedness: The Importance of Power Relations in Learning Theory', *Organization Science*, 14(3), pp. 283–296.
- Cook, S. D. and Brown, J. (2005) 'Bridging Epistemologies: The Generative Dance between Organizational Knowledge and Organizational Knowing', in S. Little, and T. Ray, (eds.), *Managing Knowledge: an essential reader*. London: Sage, pp. 51–83.
- Corley, A. and Eades, E. (2006) 'Sustaining critically reflective practitioners: competing with the dominant discourse', *International Journal of Training and Development*, 10(1), pp. 29–39.
- Couros, A. and Hildebrandt, K. (2016) 'Designing for Open & Social Learning', in G. Veletsianos, (ed.), *Emerging Technologies in Distance Education*. Athabasca, AB: Athabasca University Press, pp. 143–161.
- Couzins, M. (2012) *Strong Demand for LPI's Skills Capability Map*. Available at: <http://learnpatch.com/2012/11/strong-demand-for-lpis-skills-capability-map/> [Accessed: 6 January 2014].
- Czarniawska, B. (1997) *Narrating the organization: dramas of institutional identity*. Chicago: University of Chicago Press.
- Czarniawska, B. (2004) 'On Time, Space, and Action Nets', *Organization*, 11(6), pp. 773–791.
- Czarniawska, B. (2016) 'Reflexivity versus rigor', *Management Learning*, 47(5), pp. 615–619.
- Dann, S. (2010) 'Twitter content classification', *First Monday*, 15(12), pp. 1–12.
- Davidson-Shivers, G. . and Barrington, M. (2004) 'Revisiting the professional status of instructional design and technology and the specializations within', in M. Simonson, and M. Crawford, (eds.), *Annual Proceedings - Chicago: Volume #1 of Selected Research and Development Papers Presented at The National Convention of the Association for Educational Communications and Technology*. Chicago: Research and Theory Division of the Association for Educational Communications and Technology, pp. 250–256.
- Dayter, D. (2014) 'Self-praise in microblogging', *Journal of Pragmatics*, 61, pp. 91–102.
- Dean, M. (2010) *Governmentality: power and rule in modern society*. 2nd edn. London: Sage.

- DeLanda, M. (2006) *A New Philosophy of Society: Assemblage Theory and Social Complexity*. London: Bloomsbury.
- DeLanda, M. (2010) *Deleuze: History and Science*. New York: Atropos Press.
- Deleuze, G. and Guattari, F. (2008) *A Thousand Plateaus: Capitalism and Schizophrenia*. London: Continuum.
- Deloitte Center for the Edge (2014) *The hero's journey through the landscape of the future*. Available at <https://dupress.deloitte.com/dup-us-en/topics/operations/heros-journey-landscape-future.html> [Accessed: 25 July 2016]
- Dennen, V. (2008) 'Looking for evidence of learning: Assessment and analysis methods for online discourse', *Computers in Human Behavior*, 24(2), pp. 205–219.
- Depauw, J. (2008) 'Web2.0 under the Actor-Network Theory point-of-view : conceptualization and definition analysis', In University of London: New Political Communication Unit, Department of Politics and International Relations. Available at: <http://newpolcom.rhul.ac.uk/politics-web-2-0-conference/> [Accessed: 19 April 2014].
- DeVoe, S. E. and Pfeffer, J. (2011) 'Time is tight: how higher economic value of time increases feelings of time pressure.', *The Journal of Applied Psychology*, 96(4), pp. 665–76.
- van Dijck, J. (2013) *The Culture of Connectivity: a critical history of social media*. Oxford: Oxford University Press.
- van Dijk, J. A. G. M. (2006) *The Network Society: Social Aspects of New Media*. 2nd edn. London: Sage.
- van Dijk, T. A. (1998) *Ideology: A multidisciplinary approach*. London: Sage.
- Dirkx, J. (2008) 'Editorial. The Epistemology of Practice: An Argument for Practice- Based Research in HRD', *Human Resource Development Review*, 7(3), pp. 263–269.
- Doll, W. (2009) 'Complexity Theory', in Provenzo, E. (ed.), *Encyclopedia of the Social and Cultural Foundations of Education*. London: Sage. Available at <http://sk.sagepub.com/reference/foundations> [Accessed: 18 February 2017]
- Domizi, D. P. (2013) 'Microblogging To Foster Connections And Community in a Weekly Graduate Seminar Course', *TechTrends*, 57(1), pp. 43–51.
- Donnelly, R. (2011) 'The coalescence between synergies and conflicts of interest in a top consultancy firm: An analysis of the implications for consultants' attitudes and behaviours', *Human Resource Management Journal*, 21(1), pp. 60–73.
- Dotson, T. (2015) 'Technological Determinism and Permissionless Innovation as Technocratic Governing Mentalities : Psychocultural Barriers to the Democratization of Technology', *Engaging Science, Technology, and Society*, 1, pp. 98–120.

- Dvorkin, M. (2016) Jobs Involving Routine Tasks Aren't Growing, Federal Reserve Bank of St Louis. Available at: <https://www.stlouisfed.org/on-the-economy/2016/january/jobs-involving-routine-tasks-arent-growing> [Accessed: 25 July 2016].
- Ebner, M., Lienhardt, C., Rohs, M. and Meyer, I. (2010) 'Microblogs in higher education - a chance to facilitate informal and process-oriented learning?', *Computers & Education*, 55(1), pp. 92–100.
- Ecclestone, K. (2009) 'Lost and found in transition: educational implications of concerns about "identity", "agency" and 'structure'', in Field, J., Gallagher, J., and Ingram, R. (eds.), *Researching Transitions in Lifelong Learning*. London: Routledge, pp. 9–27.
- Education, Dept. of (2010) *The Vision of Education Reform in the United States: Secretary Arne Duncan's Remarks to United Nations Educational, Scientific and Cultural Organization* (UNESCO), Paris, France.
- Edwards, R. (2010) 'The end of lifelong learning: A post-human condition?', *Studies in the Education of Adults*, 42(1), pp. 5–17.
- Edwards, R. and Nicoll, K. (2004) 'Mobilizing workplaces: actors, discipline and governmentality', *Studies in Continuing Education*, 26(2), pp. 159–173.
- Edwards, R., Nicoll, K., Solomon, N. and Usher, R. (2004) *Rhetoric and Educational Discourse*. London: Routledge.
- Ellinger, A. . and Cseh, M. (2007) 'Contextual factors influencing the facilitation of others', *Journal of Workplace Learning*, 19(7), pp. 435–452.
- Ellingson, L.L. (2009) *Engaging Crystallization in Qualitative Research: An introduction*. Thousand Oaks CA: Sage.
- Ellison, N. B. and boyd, d. m. (2013) 'Sociality through Social Network Sites', in W. H. Dutton, (ed.), *The Oxford Handbook of Internet Studies*. Oxford: Oxford University Press, pp. 151–172.
- Engestrom, Y. (2001) 'Expansive learning at work: Toward an activity theoretical reconceptualization.', *Journal of Education and Work*, 14(1), pp. 133–156.
- Enriquez, J. G. (2010) 'Fluid centrality: a social network analysis of social–technical relations in computer-mediated communication', *International Journal of Research & Method in Education*, 33(1), pp. 55–67.
- Eraut, M. (1994) *Developing professional knowledge and competence*. London: Routledge.
- Eriksson, P. and Kovalainen, A. (2008) *Qualitative Methods in Business Research*. London: Sage.
- Erol, A. E. (2013) "'Please don't be Turk, be Greek, be Armenian": Agency and deixis across virtualized Turkish imagined community', *International Journal of Communication*, 7(1), pp. 741–758.

- European Commission (2010) *Innovation: Creating knowledge and jobs - Insights from European research in socio-economic sciences*. Brussels: European Commission.
- Evans, P. (2015) 'Emergent discourses of learning and community formation: exploring social media for professional learning', in Saunders, M. and Tosey, P. (eds.), *Handbook of Research Methods on Human Resource Development*. Cheltenham: Edward Elgar. Chapter 13.
- Evetts, J. (2011) 'Sociological Analysis of Professionalism: Past, Present and Future', *Comparative Sociology*, 10(1), pp. 1–37.
- Eysenbach, G. and Till, G. . (2001) 'Ethical issues in qualitative research on internet communities', *British Medical Journal*, 323(7321), pp. 1103–1105.
- Fabrega, J. and Paredes, P. (2013) 'Social contagion and cascade behaviors on Twitter', *Information*, 4(2), pp. 171–181. doi: 10.3390/info4020171.
- Fagan, M. H. (2014) 'Exploring a sociomaterial perspective on technology in virtual human resource development', *Advances in Developing Human Resources*, 16(3), pp. 320–334.
- Fahy, P., Ally, M., Crawford, G., Cookson, P., Keller, V. and Prosser, F. (2000) 'The development and testing of a tool for analysis of computer mediated conferencing transcripts', *Alberta Journal of Educational Research*, 46, pp. 85–88.
- Fairclough, N. (2003) *Analysing Discourse: textual analysis for social research*. London: Routledge.
- Fairclough, N. (2005) 'Discourse analysis in organization studies: The case for critical realism', *Organization Studies*, 26(6), pp. 915–939.
- Farías, I. (2014) 'Virtual attractors, actual assemblages: How Luhmann's theory of communication complements actor-network theory', *European Journal of Social Theory*, 17(1), pp. 24–41. doi: 10.1177/1368431013484003.
- Fenwick, T. (2010) 'Workplace "learning" and adult education: Messy objects, blurry maps and making difference.', *European Journal for Research on the Education and Learning of Adults*, 1(1–2), pp. 79–95.
- Fenwick, T. (2013) 'Understanding transitions in professional practice and learning: Towards new questions for research', *Journal of Workplace Learning*, 25(6), pp. 352–367. doi: 10.1108/JWL-06-2012-0047.
- Fenwick, T. (2014) 'Social media, professionalism and higher education: a sociomaterial consideration', *Studies in Higher Education*, 5079(March 2015), pp. 1–14.
- Fenwick, T. and Edwards, R. (2010) *Actor-Network Theory in Education*. London: Routledge.
- Fenwick, T. and Edwards, R. (2013) 'Performative ontologies: Sociomaterial approaches to researching adult education and lifelong learning', *European Journal for Research on the Education and Learning of Adults*, 4(1), pp. 49–63.



- Fenwick, T. and Edwards, R. (2014) 'Networks of knowledge, matters of learning, and criticality in higher education', *Higher Education*, 67(1), pp. 35–50.
- Fenwick, T., Edwards, R. and Sawchuk, P. (2011) *Emerging Approaches to Educational Research: Tracing the Sociomaterial*. London: Routledge.
- Fenwick, T. and Landri, P. (2012) 'Materialities, textures and pedagogies: socio-material assemblages in education', *Pedagogy, Culture & Society*, (December), pp. 37–41.
- Fenwick, T. and Nerland, M. (2014) 'Introduction: Sociomaterial professional knowing, work arrangements and responsibility: new times, new concepts?', in *Reconceptualising Professional Learning. Sociomaterial knowledges, practices and responsibilities*. Abingdon: Routledge, pp. 1–8.
- Fenwick, T., Nerland, M. and Jensen, K. (2012) 'Sociomaterial approaches to conceptualising professional learning and practice', *Journal of Education and Work*, 25(1), pp. 1–13.
- Ferguson, H. and Wheat, K. L. (2015) 'Early career academic mentoring using Twitter: the case of #ECRchat', *Journal of Higher Education Policy and Management*, 37(1), pp. 3–13.
- Findlay, P., Kalleberg, A. L. and Warhurst, C. (2015) 'The challenge of job quality', *Human Relations*, 66(664), pp. 441–451.
- Fischer, E. and Reuber, A. R. (2011) 'Social interaction via new social media: (How) can interactions on Twitter affect effectual thinking and behavior?', *Journal of Business Venturing*. 26(1), pp. 1–18.
- Florida, R. (2002) *The Rise of the Creative Class. And How It's Transforming Work, Leisure and Everyday Life*. New York: Basic Books.
- Ford, K. C., Veletsianos, G. and Resta, P. (2014) 'The Structure and Characteristics of #PhDChat, an Emergent Online Social Network', *Journal of Interactive Media in Education*, Available at <http://jime.open.ac.uk/articles/10.5334/2014-08/> [Accessed: 20 May 2015].
- Foucault, M. (1979) *Discipline and Punish: the Birth of the Prison*. Harmondsworth: Penguin.
- Foucault, M. (1988) 'Technologies of the Self', in Martin, L., Gutman, H., and Hutton, P. (eds.), *Technologies of the Self: A Seminar with Michel Foucault*. Amherst: University of Massachusetts Press, pp. 16–49.
- Foucault, M. (1993) 'Commentary on Foucault: "About the Beginnings of the Hermeneutics of the Self: Two Lectures at Dartmouth"', *Self and Subjectivity*, 21(2), pp. 206–219.
- Fournier, H. and Kop, R. (2010) 'Researching the design and development of a Personal Learning Environment', in PLE Conference, 6-8 June. Barcelona. Available at: [http://pleconference.citilab.eu/cas/wp-content/uploads/2010/06/ple2010\\_submission\\_88.pdf](http://pleconference.citilab.eu/cas/wp-content/uploads/2010/06/ple2010_submission_88.pdf) [Accessed: 28 May 2014].

- Fox, N. J. and Alldred, P. (2015) 'New materialist social inquiry: designs, methods and the research-assemblage', *International Journal of Social Research Methodology*, 18(4), pp. 399–414.
- Fox, S. (2005) 'An actor-network critique of community in higher education: implications for networked learning', *Studies in Higher Education*, 30(1), pp. 95–110.
- Francis, H. (2007) 'Discursive Struggle and the Ambiguous World of HRD', *Advances in Developing Human Resources*, 9(1), pp. 83–96.
- Freitas, E. De and Curinga, M. X. (2015) 'New materialist approaches to the study of language and identity: Assembling the posthuman subject', *Curriculum Inquiry*, 45(3), pp. 249–265.
- Frey, C. B. and Osborne, M. A. (2017) 'The future of employment: How susceptible are jobs to computerisation?', *Technological Forecasting and Social Change*, 114, pp. 254–280.
- Fuchs, C. (2012) 'Social media, riots, and revolutions', *Capital & Class*, 36(3), pp. 383–391.
- Gabriel, Y. (2002) 'Essai: On paragrammatic uses of organizational theory: A provocation', *Organization Studies*, 23(1), pp. 133–151.
- Gaffney, D. and Puschmann, C. (2014) 'Data Collection on Twitter', in K. Weller, A. Bruns, C. Puschmann, and M. Mahrt, (eds.), *Twitter and Society*. New York, NY: Peter Lang, pp. 55–67.
- Gale, K., Turner, B. and McKenzie, L. (2013) 'Action research, becoming and the assemblage: a Deleuzian reconceptualisation of professional practice', *Educational Action Research*, 21(4), pp. 549–564.
- Gao, F., Luo, T. and Zhang, K. (2012) 'Tweeting for learning: A critical analysis of research on microblogging in education published in 2008–2011', *British Journal of Educational Technology*, 43(5), pp. 783–801.
- Garavan, T. O'Donnell, D., McGuire, D. and Watson, S. (2007) 'Exploring perspectives on human resource development: An introduction', *Advances in Developing Human Resources*, 9(3), pp. 3–10.
- Garavan, T. N., Gunnicle, P. and Morley, M. (2000) 'Contemporary HRD research: a triarchy of theoretical perspectives and their prescriptions for HRD', *Journal of European Industrial Training*, 24(2), pp. 65–93.
- Garavan, T. N., McGuire, D. and Lee, M. (2015) 'Reclaiming the "D" in HRD: A Typology of Development Conceptualizations, Antecedents, and Outcomes', *Human Resource Development Review*, 14(4), pp. 359–388.
- Garrison, D. R. and Cleveland-Innes, M. (2005) 'Facilitating cognitive presence in online learning: Interaction is not enough', *American Journal of Distance Education*, 19(3), pp. 133–148.
- du Gay, P. (1996) *Consumption and Identity at Work*. London: Sage.
- Gee, J. P., Hull, G. and Lankshear, C. (1996) *The New Work Order: Behind the Language of the New Capitalism*. St Leonards: Allen & Unwin.



- Gee, J. P. (2003) 'What video games have to teach us about learning and literacy', *Computers in Entertainment*, 1(1), p. 20.
- Geiger, D. (2009) 'Revisiting the Concept of Practice: Toward an Argumentative Understanding of Practicing', *Management Learning*, 40, pp. 129–144.
- Gerbic, P. and Stacey, E. (2005) 'A purposive approach to content analysis : Designing analytical frameworks', *Internet and Higher Education*, 8, pp. 45–59. doi: 10.1016/j.iheduc.2004.12.003.
- Gherardi, S. (2000) 'Practice-based Theorizing on Learning and Knowing in Organizations', *Organization*, 7(2), pp. 211–223.
- Gherardi, S. (2006) *Organizational Knowledge: The Texture of Workplace Learning*. Oxford: Blackwell.
- Gherardi, S. and Nicolini, D. (2000) 'The Organizational Learning of Safety in Communities of Practice', *Journal of Management Inquiry*, (9), pp. 7–18.
- Giarini, O. and Malitza, M. (2015) 'The Double Helix of Learning and Work \*', *Cadmus*, 2(5), pp. 34–58.
- Gibbs, J. L., Rozaidi, N. A. and Eisenberg, J. (2013) 'Overcoming the "Ideology of Openness": Probing the affordances of social media for organizational knowledge sharing', *Journal of Computer-Mediated Communication*, 19(1), pp. 102–120.
- Giddens, A. (1990) *The Consequences of Modernity*. Cambridge: Polity.
- Gillen, J. and Merchant, G. (2013) 'Contact calls: Twitter as a dialogic social and linguistic practice', *Language Sciences*. 35(1), pp. 47–58.
- Glezakos, N. and Lazakidou, A. (2012) *Organizational Design of Online Communities*. In A. A. Lazakidou, (ed.), *Annals of, Virtual Communities, Social Networks and Collaboration*. New York, NY: Springer New York, pp. 61-73.
- Gnosis Media Group (no date) *Tweetchat Wiki/By Subject*. Available at: [http://www.gnosisarts.com/index.php?title=Tweetchat Wiki/By Subject](http://www.gnosisarts.com/index.php?title=Tweetchat_Wiki/By_Subject) [Accessed: 29 May 2014].
- Gold, J. and Bratton, J. (2014) 'Towards critical human resource development education (CHRDE): using the sociological imagination to make the HRD profession more critical in the post-crisis era', *Human Resource Development International*, 17(4), pp. 400–415.
- Gold, J., Holden, R., Iles, P., Stewart, J. and Beardwell, J. (2010) *Human Resource Development: theory and practice*. London: Palgrave Macmillan.
- Gold, J., Holden, R., Iles, P., Stewart, J. and Beardwell, J. (2013) 'The Future of Human Resource Development', in *Human Resource Development: theory & practice*. 2nd edn. London: Palgrave Macmillan, pp. 413–427.
- Goodings, L., Locke, A. and Brown, S. D. (2007) 'Social Networking Technology: Place and Identity in Mediated Communities', *Journal of Community & Applied Social Psychology*, 17, pp. 463–476.

- Grabher, G. (2002) 'Fragile sector, robust practice: project ecologies in new media', *Environment and Planning A*, 34(11), pp. 1911–1926.
- Greenberg, J. (2016) You Aren't as Mad About Twitter's Changes as You Said, Twitter Says | WIRED, Wired. Available at: <https://www.wired.com/2016/04/arent-mad-twitters-changes-said-twitter-says/> [Accessed: 6 April 2017].
- Greener, S. L. (2008) 'Getting online to learn: researching preparation for online learning', in UFHRD Conference, Lille, 21-23 May. Available at <http://www.ufhrd.co.uk/wordpress/wp-content/uploads/2008/06/1007-getting-online-to-learn-researching-preparation-for-on.pdf> [Accessed: 26 April 2016].
- Greenhow, C. and Robelia, B. (2009) 'Informal learning and identity formation in online social networks', *Learning, Media and Technology*, 34(2), pp. 119–140.
- Gregg, M. (2011) *Work's Intimacy*. Cambridge: Polity.
- Grey, C. (2005) *A Short, Fairly Interesting and Reasonably Cheap Book About Studying Organizations*. London: Sage.
- Gruzd, A. and Haythornthwaite, C. (2013) 'Enabling community through social media', *Journal of Medical Internet Research*, 15(10), pp. 1–27.
- Gruzd, A., Wellman, B. and Takhteyev, Y. (2011) 'Imagining Twitter as an Imagined Community', *American Behavioral Scientist*, 55(10), pp. 1294–1318.
- Gunawardena, C. N., Lowe, C. A. and Anderson, T. (1997) 'Analysis of a global online debate and the development of an interaction analysis model for examining social construction of knowledge in computer conferencing', *Journal of Educational Computing Research*, 17(4), pp. 397–431.
- Guzman, G. (2009) 'What is practical knowledge?', *Journal of Knowledge Management*, 13(4), pp. 86–98.
- Hakkarainen, K., Engeström, R. and Paavola, S. (2009) 'Knowledge Practices, Epistemic Technologies, and Pragmatic Web.', in *Proceedings of I-KNOW and I-SEMANTICS*, pp. 683–694.
- Hamid, S., Waycott, J., Kurnia, S. and Chang, S. (2015) 'Understanding students' perceptions of the benefits of online social networking use for teaching and learning', *Internet and Higher Education*, 26, pp. 1–9.
- Hamilton, E. C. and Friesen, N. (2013) 'Online Education: A Science and Technology Studies Perspective', *Canadian Journal of Learning and Technology*, 39(2).
- Hamlin, B. and Stewart, J. (2011) 'What is HRD? A definitional review and synthesis of the HRD domain', *Journal of European Industrial Training*, 35(3), pp. 199–220.
- Hands, J. (2011) *@ is for Activism: Dissent, Resistance and Rebellion in a Digital Culture*. London: Pluto Press.

- Hansen, D. L. (2011) 'Exploring social media relationships', *On the Horizon*, 19(1), pp. 43–51.
- Harman, G. (2009) *Prince of Networks: Bruno Latour and Metaphysics*, *Symposium*. Vol 14. Melbourne: re.press.
- Harman, K. (2012) 'Everyday learning in a public sector workplace: The embodiment of managerial discourses', *Management Learning*, 43(3), pp. 275–289.
- Harman, K. (2014) 'The multiple reals of workplace learning', *European Journal for Research on the Education and Learning of Adults*, 5(1), pp. 51–66.
- Hart, J. (2012) *The future belongs to those who take charge of their own learning | Learning in the Social Workplace*. Available at: <http://www.c4lpt.co.uk/blog/2012/10/29/the-future-belongs-to-those-who-take-charge-of-their-own-learning/> [Accessed: 28 May 2014].
- Hatcher, T. and Bowles, T. (2006) 'Bridging the Gap between Human Resource Development and Adult Education: Part One, Assumptions, Definitions, and Critiques.', *New Horizons in Adult Education & Human Resource Development*, 20(2), pp. 5–23.
- Haxell, A. (2016) 'When we have never been human, what is to be done? Exploring posthumanism within the context of networked learning.', in Cranmer, S., Dohn, N., Laat, M. De, Ryberg, T., and Sime, J. (eds.), *Proceedings of the 10th International Conference on Networked Learning 2016*. Available at: <https://ezp.lib.unimelb.edu.au/login?url=https://search.ebscohost.com/login.aspx?direct=true&db=edsgao&AN=edsgcl.159625648&site=eds-live&scope=site> [Accessed: 26 October 2016].
- Haythornthwaite, C. (2006) 'Facilitating collaboration in online learning', *Journal of Asynchronous Learning Networks*, 10(1), pp. 7–24.
- Haythornthwaite, C. (2015) 'Rethinking learning spaces: networks, structures, and possibilities for learning in the twenty-first century', *Communication Research and Practice*, 1(4), pp. 292–306.
- Heil, W. and Piskorski, M. (2009) *New Twitter Research: Men Follow Men and Nobody Tweets*, Harvard Business Review blog. Available at: <http://blogs.hbr.org/2009/06/new-twitter-research-men-follo/> [Accessed: 22 April 2014].
- Heracleous, L. (2006) 'A Tale of Three Discourses: The Dominant, the Strategic and the Marginalized\*', *Journal of Management Studies*, 43(5), pp. 1059–1087.
- Herbert, I. and Rothwell, A. (2016) 'Employability and contingent finance professionals in the knowledge-based economy', in *Chinese American Scholars Association*, 4th–6th January, pp. 1–22. Available at: <https://dspace.lboro.ac.uk/2134/24247> [Accessed: 8 April 2017].

- Herdağdelen, A. (2013) 'Twitter n-gram corpus with demographic metadata', *Language Resources and Evaluation*, 47(4), pp. 1127–1147. doi: 10.1007/s10579-013-9227-2.
- Hine, C. (2015) *Ethnography for the Internet: embedded, embodied and everyday*. London: Bloomsbury.
- Holmer, T. (2008) 'Discourse Structure Analysis of Chat Communication', *Language@internet*, 5(9).
- Honeycutt, C. and Herring, S. C. (2009) 'Beyond microblogging: Conversation and collaboration via twitter', *Proceedings of the 42nd Annual Hawaii International Conference on System Sciences, HICSS*, pp. 1–10.
- Hope, A. (2016) 'Educational heterotopia and students' use of Facebook', *Australasian Journal of Educational Technology*, 32(1), pp. 47–58.
- Horan, T. J. (2013) '"Soft" Versus "Hard" News on Microblogging Networks', *Information, Communication & Society*, 16(1), pp. 43–60.
- Howard, P. N. (2002) 'Network Ethnography and the Hypermedia Organization: New Media, New Organizations, New Methods', *New Media & Society*, 4(4), pp. 550–574.
- Howison, J., Wiggins, A. and Crowston, K. (2010) 'Validity Issues in the Use of Social Network Analysis for the Study of Online Communities', *Journal of the Association for Information Systems*, (May), pp. 1–28.
- Howkins, J. (2001) *The Creative Economy: How People Make Money from Ideas*. London: Allen Lane.
- Hsieh, Y. H. and Tsai, C. C. (2012) 'The effect of moderator's facilitative strategies on online synchronous discussions', *Computers in Human Behavior*. 28(5), pp. 1708–1716.
- Hultman, K. and Lenz Taguchi, H. (2010) 'Challenging anthropocentric analysis of visual data: a relational materialist methodological approach to educational research', *International Journal of Qualitative Studies in Education*, 23(5), pp. 525–542.
- Hurt, A. C., Lynham, S. A. and McLean, G. N. (2014) 'Investigating the HRD cube and explicating extant paradigms of HRD', *European Journal of Training and Development*. 38(4), pp. 323–346.
- Isari, D., Pontiggia, A. and Virili, F. (2016) 'Working with tweets vs. working with chats: An experiment on collaborative problem solving', *Computers in Human Behavior*. 58, pp. 130–140.
- Jackson, A. Y. (2013a) 'Posthumanist data analysis of mangling practices', *International Journal of Qualitative Studies in Education*, 26(6), pp. 37–41.
- Jackson, A. Y. (2013b) 'Spaces of Power/Knowledge', *Qualitative Inquiry*, 19(10), pp. 839–847.
- Jackson, A. Y. and Mazzei, L. A. (2012) *Thinking with Theory in Qualitative Research: Viewing data across multiple perspectives*. London: Routledge.

- Jacobs, N. (2002) 'Co-term network analysis as a means of describing the information landscapes of knowledge communities across sectors', *Journal of Documentation*, 58(5), pp. 548–562.
- Java, A., Song, X., Finn, T. and Tseng, B. (2007) 'Why we Twitter: Understanding microblogging usage and communities', in *Proceedings of the 9th WebKDD and 1st SNA-KDD 2007 Workshop on Web Mining and Social Network Analysis*, San Jose, CA. New York, New York, USA: ACM, pp. 56–65.
- Johansson, L. (2015) 'Post-qualitative line of flight and the confabulative conversation: a methodological ethnography', *International Journal of Qualitative Studies in Education*, 8398(September), pp. 1–22.
- Johri, A. (2011) 'The socio-materiality of learning practices and implications for the field of learning technology', *Research in Learning Technology*, 19(3), pp. 207–217.
- Jones, J. (2014) 'Switching in Twitter's Hashtagged Exchanges', *Journal of Business and Technical Communication*, 28(1), pp. 83–108.
- Jones, J. P., Woodward, K. and Marston, S. A. (2007) 'Situating flatness', *Transactions of the Institute of British Geographers*, 32(2), pp. 264–276.
- Jordan, K. (2016) 'Academics' online connections: Characterising the structure of personal networks on academic social networking sites and Twitter', In *Proceedings of the 10th International Conference on Networked Learning 2016*, pp. 414–421. Available at: <http://www.networkedlearningconference.org.uk/abstracts/pdf/P45.pdf> [Accessed: 13 January 2017].
- Jorgensen, K. M. and Henriksen, L. B. (2011) 'Identity and HRD', in McGuire, D. and Jorgensen, K. M. (eds.), *Human Resource Development: Theory & Practice*. London: Sage, pp. 129–140.
- Keenoy, T. (1999) 'HRM as Hologram: a polemic', *Journal of Management Studies*, 36(1), pp. 1–23.
- Kelsey, D. and Bennett, L. (2014) 'Discipline and resistance on social media: Discourse, power and context in the Paul Chambers "Twitter Joke Trial"', *Discourse, Context & Media*. 3, pp. 37–45.
- Kemeny, T. and Storper, M. (2015) 'Is Specialization Good for Regional Economic Development?', *Regional Studies*. 49(6), pp. 1003–1018.
- Kineo (2013) *Learning at the Speed of Need: the top ten tasks for L&D in 2014*. Available at <https://www.kineo.com/m/0/learning-insights-2013.pdf> [Accessed: 11 May 2016].
- Kivinen, O. and Ristela, P. (2003) 'From Constructivism to a Pragmatist Conception of Learning', *Oxford Review of Education*, 29(3), pp. 363–375.
- Knox, J. (2014) 'Active Algorithms : Sociomaterial Spaces in the E-learning and Digital Cultures MOOC', *Campus Virtuales*, 3(1), pp. 42–55.
- Kop, R. (2010) 'The design and development of a personal learning environment: researching the learning experience', in *European*

- Distance and E-learning Network Annual Conference 2010*. Valencia, Spain.
- Kop, R. and Fournier, H. (2011) 'A Pedagogy of Abundance or a Pedagogy to Support Human Beings ? Participant support on Massive Open Online Courses A Pedagogy of Abundance or a Pedagogy to Support Human Beings', *The International Review of Research in Open and Distributed Learning*, 12(7) pp. 74–93.
- Korunka, C., Kubicek, B., Paskvan, M. and Ulferts, H. (2015) 'Changes in work intensification and intensified learning: challenge or hindrance demands?', *Journal of Managerial Psychology*, 30(7), pp. 786–800.
- Koutropoulos, A., Abajian, S. C., DeWaard, I., Hogue, R. J., Keskin, N. O. and Rodriguez, C. O. (2014) 'What Tweets Tell us About MOOC Participation', *International Journal of Emerging Technologies in Learning (iJET)*, 9(1), p. 8.
- Koutropoulos, A., Abajian, S. C., de Waard, I., Hogue, R., Keskin, N. Ö. and Rodriguez, C. O. (2014) 'What tweets tell us about MOOC participation', *International Journal of Emerging Technologies in Learning*, 9(1), pp. 8–21.
- Kozinets, R. V. (2010) *Netnography: Doing Ethnographic Research Online*. London: Sage.
- Kretsos, L. and Livanos, I. (2016) 'The extent and determinants of precarious employment in Europe', *International Journal of Manpower*, 37(1), pp. 25–43.
- Laat, M., Lally, V., Lipponen, L. and Simons, R.-J. (2007) 'Investigating patterns of interaction in networked learning and computer-supported collaborative learning: A role for Social Network Analysis', *International Journal of Computer-Supported Collaborative Learning*, 2(1), pp. 87–103.
- de Laet, M. and Mol, A. (2000) 'The Zimbabwe Bush Pump: Mechanics of a Fluid technology', *Social Studies of Science*, 30(2), pp. 225–263.
- LaPointe, D. K. and Gunawardena, C. N. (2004) 'Developing, testing and refining of a model to understand the relationship between peer interaction and learning outcomes in computer-mediated conferencing', *Distance Education*, 25(1), pp. 83–106.
- Lasorsa, D. L., Lewis, S. C. and Holton, A. E. (2012) 'Normalizing Twitter', *Journalism Studies*, 13(1), pp. 19–36.
- Latour, B. (1987) *Science in Action: How to follow scientists and engineers through society*. Cambridge, MA: Harvard University Press.
- Latour, B. (1994) 'On Technical Mediation - Philosophy, Sociology, Genealogy', *Common Knowledge*, 3(2), pp. 29–64.
- Latour, B. (1996) 'On Actor-Network Theory: A Few Clarifications', *Soziale Welt*, pp. 369–381.



- Latour, B. (1999) *Pandora's hope: essays on the reality of science studies*. Cambridge MA: Harvard University Press.
- Latour, B. (2005) *Reassembling the Social - An Introduction to Actor-Network-Theory*. Oxford: Oxford University Press.
- Latour, B. and Woolgar, S. (1986) *Laboratory Life: The Construction of Scientific Facts*. 2nd edn. London: Sage.
- Lave, J. and Wenger, E. (1991) *Situated learning: Legitimate peripheral participation*, Cambridge University Press
- Law, J. (1992) 'Notes on the Theory of the Actor-Network: Ordering, Strategy, and Heterogeneity', *Systems Practice*, 5(4), pp. 379–393.
- Law, J. (2003) *Making a Mess with Method*. Centre for Science Studies, Lancaster University. Available at <http://www.lancaster.ac.uk/fass/resources/sociology-online-papers/papers/law-making-a-mess-with-method.pdf> [Accessed: 6 January 2016].
- Law, J. (2004) *After Method: Mess in Social Science Research*. Abingdon: Routledge.
- Law, J. (2008) 'On sociology and STS', *Sociological Review*, 56(4), pp. 623–649.
- Law, J. (2009) 'Actor Network Theory and Material Semiotics', in B.S. Turner, (ed.), *The New Blackwell Companion to Social Theory*. Chichester: Wiley, pp. 141–158.
- Law, J. and Hassard, J. (1999) *Actor Network Theory and After*. Oxford: Blackwell.
- Lawless, A., Sambrook, S., Garavan, T. and Valentin, C. (2011) 'A discourse approach to theorising HRD: opening a discursive space', *Journal of European Industrial Training*, 35(3), pp. 264–275.
- Lee, K. (2004) 'Presence, explicated', *Communication Theory*, 14(1), pp. 27–50.
- Lee, M. (2003) 'The Complex Roots of HRD'. In *HRD in a Complex World*. London: Routledge, pp. 7–24.
- Lee, M. (2010) 'Shifting boundaries: The role of HRD in a changing world', *Advances in Developing Human Resources*, 12(5), pp. 524–535.
- Lee, M. (2001) 'A refusal to define HRD.', *Human Resource Development International*, 4(3), pp. 327–341.
- Van Leeuwen, T. (2005) *Introducing Social Semiotics*. London: Routledge.
- Van Leeuwen, T. (2008) *Discourse and Practice*. Oxford: Oxford University Press.
- Lemke, T. (2001) 'The Birth of Bio-politics: Michel Foucault's Lecture at the College de France on Neo-Liberal Governmentality.', *Economy and Society*, 30(2), pp. 190–207.
- Leonardi, P. M., Huysman, M. and Steinfield, C. (2013) 'Enterprise social media: Definition, history, and prospects for the study of social technologies in organizations', *Journal of Computer-Mediated Communication*, 19(1), pp. 1–19.

- Levi-Strauss, C. (1967) *The Savage Mind*. Chicago: University of Chicago Press.
- Lewis, B. and Rush, D. (2013) 'Experience of developing Twitter-based communities of practice in higher education', *Research in Learning Technology*, 21(18598), pp. 1–13.
- Lewis, C. and Ketter, J. (2012) 'Learning as Social Interaction: Interdiscursivity in a Teacher and Researcher Study Group', in Rogers, R. (ed.), *An Introduction to Critical Discourse Analysis in Education*. 2nd edn. Abingdon: Routledge, pp. 128–153.
- Lewis, T. (2007) 'Braverman, Foucault and the labor process: framing the current high-skills debate', *Journal of Education and Work*, 20(5), pp. 397–415.
- Li, J. and Greenhow, C. (2015) 'Scholars and social media: tweeting in the conference backchannel for professional learning', *Educational Media International*, 52(1), pp. 1–14.
- Liang, A. and McQueen, R. J. (1999) 'Computer Assisted Adult Interactive Learning in a Multi-Cultural Environment', *Adult Learning*, 11(1), pp. 26–29.
- Lim, V. K. and Chen, D. J. (2009) 'Cyberloafing at the workplace: Gain or drain on work?', *Behaviour & Information Technology*, 25(1), pp. 1–11.
- Liu, A. (2004) *The Laws of Cool: Knowledge Work and the Culture of Information*. London: University of Chicago Press.
- Livingstone, D. (1999) 'Exploring the icebergs of adult learning: Findings of the first Canadian survey of informal learning practices', *Canadian Journal for the Study of Adult Education*, 3(2), pp. 49–72.
- Lorino, P., Tricard, B. and Clot, Y. (2011) 'Research Methods for Non-Representational Approaches to Organizational Complexity: The Dialogical Mediated Inquiry', *Organization Studies*, 32(6), pp. 769–801.
- Lotan, G., Graeff, E., Ananny, M., Gaffney, D., Pearce, I. and boyd, d. m. (2011) 'The Revolutions Were Tweeted : Information Flows During the 2011 Tunisian and Egyptian Revolutions', *International Journal of Communication*, 5, pp. 1375–1406.
- Loureiro-Koechlin, C. and Butcher, T. (2013) 'The Emergence of Converging Communities via Twitter', *The Journal of Community Informatics*, 9(3).
- Lynn Thompson, T. (2011) 'Work-learning in informal online communities: evolving spaces', *Information Technology & People*, 24(2), pp. 184–196.
- MacLeod, A., Kits, O., Whelan, E., Fournier, C., Wilson, K., Power, G., Mann, K., Tummons, J. and Brown, P. A. (2015) 'Sociomateriality', *Academic Medicine*, 90(11), pp. 1451–1456.
- Mäkitalo, Å. (2012) 'Professional learning and the materiality of social practice', *Journal of Education and Work*, 25(1), pp. 59–78.
- Malcolm, I. and Plowman, L. (2014) 'Knowledge, technology and the professional learning of localisers', *Professions and Professionalism*, 4(1), pp. 1–15.



- Margaryan, A., Boursinou, E., Lukic, D. and Zwart, H. De (2014) 'Narrating Your Work: an approach to supporting knowledge sharing in virtual teams', *Knowledge Management Research & Practice*, 13(March), pp. 1–10.
- Margaryan, A., Littlejohn, A. and Milligan, C. (2013) 'Self-regulated learning in the workplace: strategies and factors in the attainment of learning goals', *International Journal of Training and Development*, 17(4), pp. 245–259.
- Markham, A. (2012) 'Fabrication as ethical practice: qualitative inquiry in ambiguous Internet contexts', *Information, Communication & Society*, 15(3), pp. 334–353.
- Markham, A. (2013) 'Undermining "data": A critical examination of a core term in scientific inquiry', *First Monday*, 18(10).
- Markham, A. and Lindgren, S. (2012) 'From object to flow: Network sensibilities, symbolic interactionism, and social media', *Studies in Symbolic Interaction*, 43(December), pp. 7–41.
- Marshak, R. J. and Grant, D. (2008) 'Organizational Discourse and New Organization Development Practices', *British Journal of Management*, 19(s1), pp. S7–S19. doi: 10.1111/j.1467-8551.2008.00567.x.
- Martínez, A., Dimitriadis, Y., Rubia, B., Gómez, E. and De la Fuente, P. (2003) 'Combining qualitative evaluation and social network analysis for the study of classroom social interactions', *Computers and Education*, 41(4), pp. 353–368.
- Marwick, A. E. (2014) 'Ethnographic and Qualitative Research on Twitter.', in K. Weller, A. Bruns, C. Puschmann, and M. Mahrt, (eds.), *Twitter and Society*. New York: Peter Lang, pp. 109–122.
- Marwick, A. E. and boyd, d. m. (2011) 'I tweet honestly, I tweet passionately: Twitter users, context collapse, and the imagined audience', *New Media & Society*, 13(1), pp. 114–133.
- Mayer, K. (2012) 'Objectifying social structures: Network visualization as means of social optimization', *Theory & Psychology*, 22(2), pp. 162–178.
- Mazzolini, M. and Maddison, S. (2007) 'When to jump in: The role of the instructor in online discussion forums', *Computers & Education*, 49(2), pp. 193–213.
- McAfee, A. (2009) *Enterprise 2.0: New Collaborative Tools for Your Organization's Toughest Challenges*. Boston: Harvard Business Press.
- McArthur, J. A. and White, A. F. (2016) 'Twitter Chats as Third Places: Conceptualizing a Digital Gathering Site', *Social Media + Society*, 2(3).
- McCulloch, J., McIntosh, E. and Barrett, T. (2011) *Tweeting for Teachers: how can social media support teacher professional development?* Pearson Centre for Policy and Learning. Available at <http://www.itte.org.uk/sites/default/files/Tweetingforteachers.pdf> [Accessed: 29 May 2014].

- McGoldrick, J., Stewart, J. and Watson, S. (2001) 'Theorizing human resource development', *Human Resource Development International*, 4(3), pp. 343–356.
- McGuire, D. (2011) 'Foundations of Human Resource Development', in McGuire, D. and Jorgensen, K. M. (eds.), *Human Resource Development: theory & practice*. London: Sage.
- McGuire, D., O'Donnell, D., Garavan, T. and Murphy, J. (2001) 'Framing human resource development: an exploration of definitional perspectives using discourse analysis', *Irish Academy of Management Conference*. Available at: <http://eresearch.qmu.ac.uk/384/> [Accessed: 1 July 2013].
- McInerney, P.-B. (2009) 'Technology Movements and the Politics of Free/Open Source Software', *Science, Technology, & Human Values*, 35(2), pp. 206–233.
- McLean, C. and Hassard, J. (2004) 'Symmetrical Absence/Symmetrical Absurdity: Critical Notes on the Production of Actor-Network Accounts\*', *Journal of Management Studies*, 41(3), pp. 493–519.
- McLean, G. and McLean, L. (2001) 'If we can't define human resource development in one country, how can we define it in an international context?', *Human Resource Development International*, 4(3), pp. 313–326.
- McLoughlin, C. and Lee, M. J. W. (2008) 'The three p's of pedagogy for the networked society: personalization, participation, and productivity.', *International Journal of Teaching and Learning in Higher Education*, 20(1), pp. 10–27.
- McPherson, M., Budge, K. and Lemon, N. (2015) 'New practices in doing academic development: Twitter as an informal learning space', *International Journal for Academic Development*, 20(2), pp. 126–136.
- Megele, C. (2014) 'Theorising Twitter Chat', *Journal of Applied Academic Practice*, 2(2), pp. 46–51.
- Mercer, N. (2004) 'Sociocultural discourse analysis: analysing classroom talk as a social mode of thinking', *Journal of Applied Linguistics*, 1(2), pp. 137–168.
- Metcalf, B. D. (2008) 'A feminist poststructuralist analysis of HRD: why bodies, power and reflexivity matter', *Human Resource Development International*, 11(5), pp. 447–463.
- Miettinen, R. (1997) 'The Concept of Activity in the Analysis of Heterogeneous Networks in Innovation Processes', in *CSST Workshop: Actor Network Theory and After*. Available at: <http://communication.ucsd.edu/MCA/Paper/Reijo/Reijo.html> [Accessed: 9 January 2014].
- Miller, C. R. (1984) 'Genre as social action', *Quarterly Journal of Speech*, 70(2), pp. 151–167.

- Miller, V. (2008) 'New Media, Networking and Phatic Culture', *Convergence: The International Journal of Research into New Media Technologies*, 14(4), pp. 387–400.
- Milligan, C., Littlejohn, A. and Margaryan, A. (2014) 'Workplace Learning in Informal Networks', *Journal of Interactive Media in Education*, 1(6), pp. 1–11.
- Milligan, C., Fontana, P., Littlejohn, A. and Margaryan, A. (2015) 'Self-regulated learning behaviour in the finance industry', *Journal of Workplace Learning*, 27(5), pp. 387–402.
- Milligan, C. and Littlejohn, A. (2014) 'Supporting professional learning in a massive open online course', *International Review of Research in Open and Distance Learning*, 15(5), pp. 197–213.
- Mills, K. A. and Chandra, V. (2011) 'Microblogging as a Literacy Practice for Educational Communities', *Journal of Adolescent & Adult Literacy*, 55(1), pp. 35–45.
- Mitev, N. (2009) 'In and out of actor-network theory : a necessary but insufficient journey', *Information, Technology & People*, 22(1), pp. 9–25.
- Moisio, S. and Kangas, A. (2016) 'Reterritorializing the global knowledge economy : an analysis of geopolitical assemblages of higher education', *Global Networks*, 16(3), pp. 268–287.
- Morley, D. (2014) 'On Living in a Techno-Globalized World: Questions of History and Geography', in J. Servaes, ed.), *Technological Determinism and Social Change: Communication in a Tech-Mad World*. Lanham, Maryland: Lexington Books, pp. 41–50.
- Mott, J. and Wiley, D. (2009) 'Open For Learning: The CMS and the Open Learning Network Jon Mott and David Wiley', *Education*, 15(2), pp. 3–22.
- Mulcahy, D. (2012) 'Thinking teacher professional learning performatively: a socio-material account', *Journal of Education and Work*, 25(1), pp. 121–139.
- Müller, M. (2015) 'Assemblages and Actor-Networks : Rethinking Socio-material Power , Politics and Space', *Geography Compass*, 9(1), pp. 27–41.
- Munoz, L. R., Pellegrini-Lafont, C. and Cramer, E. (2014) 'Using Social Media in Teacher Preparation Programs: Twitter as a Means to Create Social Presence', *Perspectives on Urban Education*, 11(2), pp. 57–69.
- Murthy, D. (2013) *Twitter*. Cambridge: Polity.
- Mützel, S. (2009) 'Networks as Culturally Constituted Processes: A Comparison of Relational Sociology and Actor-network Theory', *Current Sociology*, 57(6), pp. 871–887. doi: 10.1177/0011392109342223.
- Naidu, S. and Jarvela, S. (2006) 'Analyzing CMC content for what?', *Computers & Education*, 46, pp. 96–103.

- Nerland, M. and Karseth, B. (2015) 'The knowledge work of professional associations: approaches to standardisation and forms of legitimisation', *Journal of Education and Work*, 28(1), pp. 1–23.
- Nespor, J. (1994) *Knowledge in Motion: Space, Time and Curriculum in Undergraduate Physics and Management*. Bristol, PA: Falmer Press.
- Neuhaus, F. and Webmoor, T. (2012) 'Agile Ethics for Massified Research and Visualization', *Information, Communication & Society*, 15(March 2014), pp. 43–65.
- Nicolini, D. (2010) 'Zooming In and Out: Studying Practices by Switching Theoretical Lenses and Trailing Connections', *Organization Studies*, 30(12), pp. 1391–1418.
- Nicolini, D., Gherardi, S. and Yanow, D. (2003) 'Introduction: towards a practice-based view of knowing and learning in organizations', in D. Nicolini, S. Gherardi, and D. Yanow, (eds.), *Knowing in Organizations: A Practice-Based Approach*. London: ME Sharpe.
- Nicoll, K. and Fejes, A. (2011) 'Lifelong Learning: A Pacification of "Know How"', *Studies in Philosophy and Education*, 30(4), pp. 403–417..
- Nielson, J. (2006) *Participation Inequality: Encouraging More Users to Contribute*, Nielsen Norman Group. Available at: <http://www.nngroup.com/articles/participation-inequality/> [Accessed: 22 April 2014].
- Nolan, C. T. and Garavan, T. N. (2015) 'Human Resource Development in SMEs: A Systematic Review of the Literature', *International Journal of Management Reviews*, 18, pp. 85–107. doi: 10.1111/ijmr.12062.
- Nworie, J. (2011) 'Using the Delphi Technique in Educational Technology Research', *TechTrends*, 55(5), pp. 24–30.
- OECD (1996) *OECD Economic Outlook*. No 60. Paris.
- Oliver, M. (2011) 'Technological determinism in educational technology research: Some alternative ways of thinking about the relationship between learning and technology', *Journal of Computer Assisted Learning*, 27(5), pp. 373–384.
- Omanga, D. (2015) "'Chieftaincy" in the Social Media Space: Community Policing in a Twitter Convened Baraza', *Stability: International Journal of Security & Development*, 4(1), pp. 1–16.
- Orlikowski, W. J. (2002) 'Knowing in practice: Enacting a collective capability in distributed organizing', *Organization Science*, 13(3), pp. 249–273.
- Orlikowski, W. J. and Yates, J. (2009) 'Genre Repertoire : The of Structuring Communicative Practices in Organizations', *Organization Science*, 39(4), pp. 541–574.
- Overton, L. (2013) *Preparing for a future of technology driven corporate learning*. Available at: <http://www.towardsmaturity.org/article/2013/09/10/preparing-future-technology-driven-corporate-learn/> [Accessed: 10 May 2016].

- Owen, S. (2014) 'Teacher professional learning communities: Going beyond contrived collegiality toward challenging debate and collegial learning and professional growth', *Australian Journal of Adult Learning*, 54(2), pp. 54–77.
- Oxford living Disctionaries, (n.d.) *Hologram*. Available at <https://en.oxforddictionaries.com/definition/hologram> {Accessed: 13 March 2015}.
- Page, R. (2014) 'Saying "sorry": Corporate apologies posted on Twitter', *Journal of Pragmatics*, 62, pp. 30–45.
- Panagiotopoulos, P. and Sams, S. (2012) 'An overview study of twitter in the UK local government', *tGov 2012*, pp. 1–13. Available at: <http://v-scheiner.brunel.ac.uk/handle/2438/6471> [Accessed: 14 February 2014].
- Paul Signorelli & Associates (2013) *#etmooc and #lrnchat: When Communities of Learning Discuss Community—and Produce Results*. Available at: <https://buildingcreativebridges.wordpress.com/2013/09/27/etmooc-and-lrnchat-when-communities-of-learning-discuss-community-and-produce-results/> [Accessed: 24 October 2014].
- Paulin, D., Gilbert, S., Haythornthwaite, C., Gruz, A. and Absar, R. (2015) 'Beyond the backchannel : Leveraging Twitter to enact learning processes', *iConference 2015 Proceedings*, pp. 1–3. Available at: <http://hdl.handle.net/2142/73779> [Accessed: 26 February 2017].
- Pawan, F., Paulus, T. M., Yalcin, S. and Chang, C. (2003) 'Online Learning: Patterns of Engagement and Interaction Among In-service Teachers', *Language Learning & Technology*, 7(3), pp. 119–140.
- Peña-López, I. (2013) 'Heavy switchers in translearning: from formal teaching to ubiquitous learning', *On the Horizon*, 21(2), pp. 127–137.
- Pickering, A. (1992) *Science as Practice and Culture*. Chicago: University of Chicago Press.
- Pickering, A. (1993) 'The mangle of practice: Agency and emergence in the sociology of science', *American Journal of Sociology*, 99, pp. 559–589.
- Ponti, M. (2014) 'Hei mookie! Where do i start? The role of artifacts in an unmanned MOOC', *Proceedings of the Annual Hawaii International Conference on System Sciences*, pp. 1625–1634.
- Potts, J. (2008) 'Who's Afraid of Technological Determinism? Another Look at Medium Theory', *The Fibreculture Journal*, (12). Available at: <http://twelve.fibreculturejournal.org/fcj-084-who's-afraid-of-technological-determinism-another-look-at-medium-theory/> [Accessed: 9 May 2016].
- Pratt, N. and Back, J. (2012) 'Using communities of practice as a tool to analyse developing identity in online discussion', *Learning, Media and Technology*, pp. 1–17.
- Preece, J., Maloney-Krichmar, D. and Abras, C. (2003) 'History of emergence of online communities', *Encyclopedia of Community*, pp. 1–11. Available



at:

<http://sk.sagepub.com/reference/community/n365.xml?PageNum=1024>

[Accessed: 1 July 2015].

- Procter, R., Vis, F. and Voss, A. (2013) 'Reading the riots on Twitter: methodological innovation for the analysis of big data', *International Journal of Social Research Methodology*, 16(3), pp. 197–214.
- Purohit, H., Hampton, A., Shalin, V. L., Sheth, A. P., Flach, J. and Bhatt, S. (2013) 'What kind of #conversation is Twitter? Mining #psycholinguistic cues for emergency coordination', *Computers in Human Behavior*, 29(6), pp. 2438–2447.
- Quah, D. (1999) *The Weightless Economy in Economic Development, Discussion Paper*, London: Centre for Economic Policy Research.
- Raisanen, C. and Linde, A. (2004) 'Technologizing Discourse to Standardize Projects in Multi-Project Organizations: hegemony by consensus?', *Organization*, 11(1), pp. 101–121.
- Rankin, N. (2002) 'Raising performance through people: the ninth competency survey', *Competency & Emotional Intelligence*, (January), pp. 2–21.
- Reed, P. (2013) 'Hashtags and retweets: Using Twitter to aid Community, Communication and Casual (informal) learning', *Research in Learning Technology*, 21(1063519), pp. 1–21.
- Reich, A. and Hager, P. (2014) 'Problematising practice, learning and change: practice-theory perspectives on professional learning', *Journal of Workplace Learning*, 26(6/7), pp. 418–431.
- Reichart-Smith, L. and Smith, K. D. (2012) 'Identity in Twitter's Hashtag Culture : A Sport-Media-Consumption Case Study', *International Journal of Sport Communication*, 5(2005), pp. 539–557.
- Rennstam, J. and Ashcraft, K. L. (2013) 'Knowing work: Cultivating a practice-based epistemology of knowledge in organization studies', *Human Relations*, 67(1), pp. 3–25.
- Rheingold, H. (1993) *The Virtual Community: Homesteading on the Electronic Frontier*. Cambridge, MA: MIT Press.
- Ribiere, V. M. and Tuggle, F. D. (Doug) (2010) 'Fostering innovation with KM 2.0', *Vine*, 40(1), pp. 90–101.
- Richardson, L. and St Pierre, E. . (2005) 'Writing: A Method of Inquiry', in N. Denzin, and Y. Lincoln, (eds), *The Sage Handbook of Qualitative Research Methods*. 3rd edn. London: Sage, pp. 959–978.
- Ridings, C. and Gefen, D. (2004) 'Virtual community attraction: why people hang out online', *Journal of Computer-Mediated Communication*, 10(1), pp. 00.
- Rieder, B. (2012) 'The refraction chamber: Twitter as sphere and network', *First Monday*, 17(11).

- Riedl, C., Köbler, F., Goswami, S. and Krcmar, H. (2013) 'Tweeting to Feel Connected: A Model for Social Connectedness in Online Social Networks', *International Journal of Human-Computer Interaction*, 29(10), pp. 670–687.
- Rienties, B., Tempelaar, D., Van den Bossche, P., Gijselaers, W. and Segers, M. (2009) 'The role of academic motivation in Computer-Supported Collaborative Learning', *Computers in Human Behavior*, 25(6), pp. 1195–1206.
- Rigg, C. (2005) "'It's in the way they talk": A discourse analysis of managing in two small businesses', *International Journal of Entrepreneurial Behaviour & Research*, 11(1), pp. 58–75.
- Rigg, C. and Trehan, K. (2002) "'Do they or don't they?": A comparison of traditional and discourse perspectives of HRD in SMEs', *Education and Training*, 44(89), pp. 338–397.
- Ringrose, J. (2011) 'Beyond Discourse? Using Deleuze and Guattari's schizoanalysis to explore affective assemblages, heterosexually striated space, and lines of flight online and at school', *Educational Philosophy and Theory*, 43(6), pp. 598–618.
- Ritter, A., Clark, S., Mausam and Etzioni, O. (2011) 'Named Entity Recognition in Tweets: An Experimental Study', *Proceedings of the 2011 Conference on Empirical Methods in Natural Language Processing*, pp. 1524–1534.
- Robert-Edomi, S. (2012) A stark warning to 'adapt and adopt' or die has been delivered to L&D professionals, *The Training Journal*, July 26. Available at <http://www.trainingjournal.com/news/articles-news-adjust-or-become-deadweight-ld-professionals-warned/> [Accessed: 10 May 2016].
- Robertson, S. L. (2014) 'Untangling Theories and Hegemonic Projects in Researching Education and the Knowledge Economy', in A. D. Reid, M. A. Peters, and E. P. Hart, (eds.) *A Companion to Research in Education*. Dordrecht: Springer Netherlands, pp. 267–276.
- Robinson, M., Anning, A. and Frost, N. (2005) 'When is a teacher not a teacher?' Knowledge creation and the professional identity of teachers in multi-agency settings', *Studies in Continuing Education*, 27(2), pp. 175–191.
- Rogers, R. (2004) 'Storied selves: A Critical Discourse Analysis of adult learners' literate lives', *Reading Research Quarterly*, 39(3), pp. 272–305. doi: 10.1598/RRQ.39.3.2.
- Rogers, R. (2012) 'Critical Approaches to Discourse Analysis in Educational Research', in R. Rogers, (ed.), *An Introduction to Critical Discourse Analysis in Education*. 2nd edn. Abingdon: Routledge, pp. 1–20.
- Rosa, H. (2013) *Social Acceleration: a new theory of modernity*. New York: Columbia University Press.

- Ross, C., Terras, M., Warwick, C. and Welsh, A. (2011) 'Enabled backchannel: conference Twitter use by digital humanists', *Journal of Documentation*, 67(2), pp. 214–237.
- Ross, J. and Collier, A. (2016) 'Complexity, Mess, and Not-Yetness: Teaching Online with Emerging Technologies', in G. Veletsianos, (ed.) *Emergence and Innovation in Digital Learning*. Edmonton: Athabasca University Press, pp. 17–33.
- Ross, J., Sinclair, C., Knox, J., Bayne, S. and Macleod, H. (2014) 'Teacher Experiences and Academic Identity: The Missing Components of MOOC Pedagogy', *MERLOT Journal of Online Learning and Teaching*, 10(1), pp. 57–69.
- Rourke, L., Anderson, T., Garrison, T. and Archer, W. (2001) 'Issues in the content analysis of computer conference transcripts', *International Journal of Artificial Intelligence in Education*, 12(1), pp. 8–22.
- Rouse, J. (2007) 'Practice theory', *Philosophy of Anthropology and Sociology*, Vol 15, pp. 499–540.
- Rovai, A. P. (2007) 'Facilitating online discussions effectively', *The Internet and Higher Education*, 10(1), pp. 77–88.
- Rui, H. and Whinston, A. (2012) 'Information or attention? An empirical study of user contribution on Twitter', *Information Systems and e-Business Management*, 10(3), pp. 309–324.
- Ruona, W. E. A. (2016) 'Evolving Human Resource Development', *Advances in Developing Human Resources*, 18(4), pp. 551–565.
- Rusk, R. D. and Waters, L. (2014) 'A psycho-social system approach to well-being: Empirically deriving the Five Domains of Positive Functioning', *The Journal of Positive Psychology*, 10(July), pp. 1–12.
- Russ-Eft, D. F. (2016) 'Controversies That Shaped the Field of Human Resource Development: Town Hall Forums of the Academy of Human Resource Development', *Advances in Developing Human Resources*, 18(4), pp. 512–535.
- Russell, D. (1997) 'Rethinking genre in school and society: An activity theory analysis', *Written Communication*, 14(4), pp. 504–544.
- Sambrook, S. (2008) 'Critical HRD: a concept analysis', *Personnel Review*, 38(1), pp. 61–73..
- Schatzi, T. R., Cetina, K. K. and Savigny, E. Von (2001) *The Practice Turn in Contemporary Theory*. Abingdon: Routledge.
- Schmidt, J.-H. (2014) 'Twitter and the Rise of Personal Publics', in K. Weller, A. Bruns, J. Burgess, M. Mahrt, and C. Puschmann, (eds), *Twitter and Society*. New York, NY: Peter Lang, pp. 3–14.
- Schmied, J. (2012) 'Social Digital Discourse : New Challenges', *Topics in Linguistics*, (10), pp. 43–56.



- Schneider, S. M. and Foot, K. A. (2005) 'Web Sphere Analysis: an approach to studying online action', in C. Hine, (ed.), *Virtual Methods: issues in social research on the internet*. Oxford: Berg.
- Scholz, T. (2013) 'Introduction', in *Digital Labour: the internet as playground and factory*. London: Routledge, pp. 1–9.
- Schon, D. (1984) *The Reflective Practitioner: How Professionals Think in Action*. New York: Basic Books.
- Schultze, U. and Orlikowski, W. J. (2004) 'A Practice Perspective on Technology-Mediated Network Relations: The Use of Internet-Based Self-Serve Technologies', *Information Systems Research*, 15(1), pp. 87–106.
- Schwartz, B. (2016) *The Paradox of Choice: why more is less*. Revised. New York, NY: Harper Collins.
- Scott, J. (2013) *Social Network Analysis*. 3rd edn. London: Sage.
- Selwyn, N. (2012) 'Making sense of young people, education and digital technology: the role of sociological theory', *Oxford Review of Education*, Vol. 38(1), pp. 81–96.
- Sennett, R. (2006) *The Culture of the New Capitalism*. London: Yale University Press.
- Shen, C. and Kuo, C.-J. (2015) 'Learning in massive open online courses: Evidence from social media mining', *Computers in Human Behavior*, 51, pp. 568–577. doi: 10.1016/j.chb.2015.02.066.
- Shepherd, C. (2012) *Transforming learning and development*. Available at: [http://www.youtube.com/watch?feature=player\\_embedded&v=zock4K PjWCQ](http://www.youtube.com/watch?feature=player_embedded&v=zock4K PjWCQ) [Accessed: 13 February 2013].
- Short, D., Keefer, J. M. and Stone, S. J. (2009) 'The Link between Research and Practice: Experiences of Different Professions and Implications for HRD', *Advances in Developing Human Resources*, 11(4), pp. 420–437.
- Shum, S. B. (2007) 'Hypermedia Discourse : Contesting Networks of Ideas and Arguments', in U. Priss, S. Polovina, and R. Hill, (eds), *Conceptual Structures: Knowledge Architectures for Smart Applications*. Berlin: Springer, pp. 29–44.
- Sie, R., Bitter-Rijkema, M. and Sloep, P. (2009) 'Knowledge Sharing Strategies for Collaborative Creativity', *Creativity*, (1). Available at: <http://lnx-hrl-075v.web.pwo.ou.nl/handle/1820/2126> [Accessed: 27 February 2014].
- Sie, R., Patariaia, N., Boursinou, E., Rajagopal, K., Falconer, I., Bitter-Rijkema, M., Littlejohn, A. and Sloep, Peter, B. (2013) 'Goals , Motivation for , and Outcomes of Personal Learning through Networks : Results of a Tweetstorm', *Educational Technology & Society*, 16(3), pp. 59–75.
- Siemans, G. (2005) 'Connectivism: A Learning Theory for the Digital Age', *International Journal of Instructional Technology and Distance Learning*, 2(1).

- Simone, C. De, Schmid, R. F. and McEwen, L. A. (2001) 'Supporting the Learning Process with Collaborative Concept Mapping Using Computer-Based Communication Tools and Processes', *Educational Research and Evaluation*, 7(2-3), pp. 263-283.
- Simons, M. and Masschelein, J. (2008) 'The Governmentalization of Learning and the Assemblage of a Learning Apparatus', *Educational Theory*, 58(4), pp. 391-415.
- Simpson, J. (2005) 'Conversational floors in synchronous text-based CMC discourse', *Discourse Studies*, 7(3), pp. 337-361.
- Singh, V. and Holt, L. (2013) 'Learning and best practices for learning in open-source software communities', *Computers and Education*, 63, pp. 98-108.
- Slade, B. (2013) 'Professional learning in rural practice: a sociomaterial analysis', *Journal of Workplace Learning*, 25(2), pp. 114-124.
- Sloep, P. B. (2014) 'Networked Professional Learning', in A. Littlejohn, and A. Margaryan, (eds), *Technology Enhanced Professional Learning: Processes, Practices and Tools*. London: Routledge, pp. 97-108.
- Small, T. A. (2011) 'What the Hashtag?', *Information, Communication & Society*, 14(6), pp. 872-895.
- Smith, M. (2011) *Future of Technology in Education* (#FOTE11) NodeXL SNA Map - 7 October 2011. Available at: <http://www.connectedaction.net/2011/10/07/future-of-technology-in-education-fote11-nodexl-sna-map-7-october-2011/> [Accessed: 18 April 2014].
- Smith, M. A., Rainie, L., Himelboim, I. and Shneiderman, B. (2014) *Polarized Crowds: Political conversations in Twitter*. Washington, DC. Available at: <http://www.pewinternet.org/2014/02/20/mapping-twitter-topic-networks-from-polarized-crowds-to-community-clusters/> [Accessed: 18 April 2014].
- Smith, M. A., Shneiderman, B., Milic-Frayling, N., Mendes Rodrigues, E., Barash, V., Dunne, C., Capone, T., Perer, A. and Gleave, E. (2009) 'Analyzing (social media) networks with NodeXL', in *Proceedings of the fourth international conference on Communities and technologies - C&T '09*. New York, New York, USA: ACM Press, p. 255.
- Sommerlad, H. (2016) '"A pit to put women in": Professionalism, work intensification, sexualisation and work-life balance in the legal profession in England and Wales.', *International Journal of the Legal Profession*, 23(1), pp. 61-82.
- Sørensen, E. (2009) *The Materiality of Learning: Technology and Knowledge in Educational Practice*. New York, NY: Cambridge University Press.
- Spender, J.-C. (2005) 'An Overview: What's New and Important about Knowledge Management? Building New Bridges Between Managers

- and Academics', in S. Little, and T. Ray, (eds), *Managing Knowledge: an essential reader*. London: Sage, pp. 127–154.
- Statistica (2017) *Leading social networks worldwide as of January 2017, ranked by number of active users (in millions)*. Available at: <https://www.statista.com/statistics/272014/global-social-networks-ranked-by-number-of-users/> [Accessed: 21 February 2017].
- Stehr, N. (2000) 'Deciphering Information Technologies', *European Journal of Social Theory*, 3(1), pp. 83–94.
- Stephansen, H. C. and Couldry, N. (2014) 'Understanding micro-processes of community building and mutual learning on Twitter: a "small data" approach', *Information, Communication & Society*, (July 2014), pp. 1–16.
- Stepper, J. (2015) *Working Out Loud: for a better career and life*. Ikigai Press.
- Stewart, H., Gapp, R. and Harwood, I. (2017) 'Exploring the Alchemy of Qualitative Management Research: Seeking Trustworthiness, Credibility and Rigor Through Crystallization', *The Qualitative Report*, 22(1), pp. 1–19.
- Stewart, J., Callahan, J., Rigg, C., Sambrook, S. and Trehan, K. (2014) 'Realizing the critical in CHRD: strategies for research and practice', *Human Resource Development International*, 17(4), pp. 379–383.
- Stewart, J. and Sambrook, S. (2012) 'The historical development of HRD in the UK', *Human Resource Development Review*, 11(4), pp. 443–462.
- Stirling, A. (2008) "'Opening up" and "closing down": Power, participation, and pluralism in the social appraisal of technology', *Science, Technology, & Human Values*, 33(2), pp. 262–294.
- Stoll, L., Bolam, R., McMahon, A., Wallace, M. and Thomas, S. (2006) 'Professional Learning Communities: A Review of the Literature', *Journal of Educational Change*, (7), pp. 221–258.
- Stommel, W. and Koole, T. (2010) 'The online support group as a community: A micro-analysis of the interaction with a new member', *Discourse Studies*, 12(3), pp. 357–378.
- Suthers, D., Fusco, J., Schank, P., Chu, K. H. and Schlager, M. (2013) 'Discovery of community structures in a heterogeneous professional online network', *Proceedings of the Annual Hawaii International Conference on System Sciences*, pp. 3262–3271.
- Svarc, J. (2015) 'The knowledge worker is dead: What about professions?', *Current Sociology*, 64(3), pp. 392–410.
- Swanson, R., and Holton III, E. F. (2001) *Foundations of Human Resource Development*. San Francisco: Berrett-Koehler Publishers, Inc.
- Swart, J. and Kinnie, N. (2014) 'Reconsidering Boundaries: Human Resource Management in a Networked World', *Human Resource Management*, 53(2), pp.291-310.
- Takhteyev, Y., Gruzd, A. and Wellman, B. (2012) 'Geography of Twitter networks', *Social Networks*, 34(1), pp. 73–81.

- Tams, S. and Arthur, M. B. (2010) 'New directions for boundaryless careers: Agency and interdependence in a changing world', *Journal of Organizational Behavior*, 31(5), pp. 629–646.
- Taylor, D. (2013) 'The Skills and Mindset Required for Big Learning Data', in E. Massie, (ed.), *Big Learning Data*. Alexandria, VA: ASTD, pp. 23–27.
- Tedjamulia, S. J. J., Dean, D. L., Olsen, D. R. and Albrecht, C. C. (2005) 'Motivating Content Contributions to Online Communities: Toward a More Comprehensive Theory', in *Proceedings of the 38th Annual Hawaii International Conference on System Sciences*. IEEE, p. 193b
- Teil, G. and Latour, B. (1995) 'The Hume machine: can association networks do more than formal rules', *Stanford Humanities Review*, 4(2), pp. 47–66.
- Thompson, T. L. (2010) 'Self-employed and online: (re)negotiating work-learning practices', *Journal of Workplace Learning*, 22(6), pp. 360–375.
- Thompson, T. L. (2012a) '(Re/dis)assembling learning practices online with fluid objects and spaces', *Studies in Continuing Education*, 34(3), pp. 251–266.
- Thompson, T. L. (2012b) 'I'm deleting as fast as I can: Negotiating learning practices in cyberspace', *Pedagogy, Culture & Society*, 20(1), pp. 93–112.
- Toennesen, C., Molloy, E. and Jacobs, C. (2006) Lost in Translation? Actor-Network Theory and Organisation Studies, In: European Group of Organizational Studies. Bergen, Norway. Available at [https://www.researchgate.net/profile/Eamonn\\_Molloy/publication/36381601\\_Lost\\_in\\_translation\\_Actor\\_network\\_theory\\_in\\_organization\\_studies/links/00b7d522051e5e2138000000.pdf](https://www.researchgate.net/profile/Eamonn_Molloy/publication/36381601_Lost_in_translation_Actor_network_theory_in_organization_studies/links/00b7d522051e5e2138000000.pdf) [Accessed: 28 May 2016].
- Tomlinson, J. (2007) *The Culture of Speed: The Coming of Immediacy*. London: Sage.
- Treeck, T. van and Ebner, M. (2014) 'How Useful if Twitter for Learning in Massive Communities? An Analysis of Two MOOCs', in K. Weller, A. Bruns, J. Burgess, M. Mahrt, and C. Puschmann, (eds.), *Twitter and Society*. Oxford: Peter Lang, pp. 411–423.
- Trehan, K. and Rigg, C. (2011) 'Theorising critical HRD: a paradox of intricacy and discrepancy', *Journal of European Industrial Training*, 35(3), pp. 276–290.
- Tufekci, Z. (2014) 'Big Questions for Social Media Big Data: Representativeness, Validity and Other Methodological Pitfalls', ICWSM '14: *Proceedings of the 8th International AAAI Conference on Weblogs and Social Media*, p. 10. Available at: <http://arxiv.org/abs/1403.7400> [Accessed: 10 May 2015].
- Tuomi, I. (2000) Internet, Innovation and Open Source: Actors in the Network. *First Monday*, 6(1).
- Turkle, S. (2011) *Alone Together: why we expect more from technology and less from each other*. New York, NY: Basic Books.

- Tynjälä, P. and Newton, J. (2014) 'Transitions to Working Life: Securing Professional Competence', in S. Billett, C. Harteis, and H. Gruber. (eds), *International Handbook of Research in Professional and Practice-based Learning*. London: Springer, pp. 513–533.
- Uppenberg, K. (2010) *The knowledge economy in Europe*. Luxembourg. Available at: [www.theworkfoundation.com](http://www.theworkfoundation.com) [Accessed: 29 July 2017].
- Valentin, C. (2014) 'The extra mile deconstructed: a critical and discourse perspective on employee engagement and HRD', *Human Resource Development International*, 17(4), pp. 1–16.
- Vallas, S. P. and Cummins, E. R. (2015) 'Personal branding and identity norms in the popular business press: enterprise culture in an age of precarity', *Organization Studies*, 36(3), pp. 293–319.
- Veletsianos, G., Collier, A. and Schneider, E. (2015) 'Digging deeper into learners' experiences in MOOCs: Participation in social networks outside of MOOCs, notetaking and contexts surrounding content consumption', *British Journal of Educational Technology*, 46(3), pp. 570–587.
- Wagner, E. Newell, S. and Piccoli, G. (2010) 'Understanding Project Survival in an ES Environment: A Sociomaterial Practice Perspective', *Journal of the Association for Information Systems*, 11(5), pp. 276–297.
- Wagner, N., Hassanein, K. and Head, M. (2008) 'Who is responsible for E-Learning Success in Higher Education? A Stakeholders' Analysis', *Educational Technology & Society*, 11(3), pp. 26–36.
- Wajcman, J. (2015) *Pressed for Time: The Acceleration of Life in Digital Capitalism*. London: University of Chicago Press.
- Walton, J. (1999) *Strategic Human Resource Development*. London: Prentice Hall.
- Walton, J. and Valentin, C. (2013) *Human Resource Development: Practices and Orthodoxies*. London: Palgrave Macmillan.
- Wang, C. X., Anstadt, S. and Goldman, J. (2014) 'Facilitating Group Discussions in Second Life', *MERLOT Journal of Online Learning and Teaching*, 10(1), pp. 139–152.
- Warren Little, J. (2002) 'Locating learning in teachers' communities of practice: opening up problems of analysis in records of everyday work', *Teaching and Teacher Education*, 18(8), pp. 917–946.
- Warrington, M. (2008) 'Decisions and transitions: Meeting the needs of the "knowledge economy"', *Environment and Planning C: Government and Policy*, 26(5), pp. 924–937.
- Wassermen, S. and Faust, K. (1994) *Social Network Analysis: Methods and Applications*. Cambridge: Cambridge University Press.
- Watson, C. (2011) 'Accountability, transparency, redundancy: academic identities in an era of "excellence"', *British Educational Research Journal*, 37(November 2012), pp. 955–971.



- Weber, N. M. (2012) 'Combined methods, thick descriptions: Languages of collaboration on Github', in *Proceedings of the American Society for Information Science and Technology*, pp. 1–4.
- Webster-Wright, A. (2009) 'Reframing Professional Development Through Understanding Authentic Professional Learning', *Review of Educational Research*, 79(2), pp. 702–739.
- Weller, K., Bruns, A., Burgess, J., Mahrt, M. and Puschmann, C. (2014) 'Twitter and Society: An Introduction', in K. Weller, A. Bruns, J. Burgess, M. Mahrt, and C. Puschmann, (eds), *Twitter and Society*. New York, NY: Peter Lang, pp. xxix–xxxviii.
- Wellman, B., Quan-Haase, A., Boase, J., Chen, W., Hampton, K., Díaz, I. and Miyata, K. (2003) 'The Social Affordances of the Internet for Networked Individualism', *Journal of Computer-Mediated Communication*, 8(3).
- Wellman, B., Salaff, J., Dimitrova, D., Garton, L., Gulia, M. and Haythornthwaite, C. (1996) 'Computer Networks as Social Networks: Collaborative Work, Telework, and Virtual Community', *Annual Review of Sociology*, 22, pp. 213–238.
- Wesely, P. M. (2013) 'Investigating the Community of Practice of World Language Educators on Twitter', *Journal of Teacher Education*, 64(4), pp. 305–318.
- De Wever, B., Schellens, T., Valcke, M. and Van Keer, H. (2006) 'Content analysis schemes to analyze transcripts of online asynchronous discussion groups: A review', *Computers & Education*, 46(1), pp. 6–28.
- Wilkie, A., Michael, M. and Plummer-Fernandez, M. (2015) 'Speculative method and Twitter: Bots, energy and three conceptual characters', *Sociological Review*, 63, pp. 79–101.
- Williams, S. A., Terras, M. M. and Warwick, C. (2013) 'What do people study when they study Twitter? Classifying Twitter related academic papers', *Journal of Documentation*, 69(3), pp. 384–410.
- Willmott, H. and Contu, A. (2003) 'Re-Embedding Situatedness: The Importance of Power Relations in Learning Theory.', *Organization Science*, 14(3), pp. 283–296.
- Wilson, A. N. (2016) *What is, and what might be, learned from images shared during Twitter conversations among professionals?* Ph.D. University of Stirling.
- Wilson, S., Liber, O., Johnson, M., Beauvoir, P., Sharples, P. and Milligan, C. (2009) 'Personal Learning Environments: Challenging the dominant design of educational systems', *Journal of e-Learning and Knowledge Society*, 3(2. June 2007), pp. 27–38.
- Wouters, P., Vann, K., Scharnhorst, A., Ratto, M., Hellsten, I., Fry, J. and Beaulieu, A. (2008) 'Messy Shapes of Knowledge—STS Explores Informatization, New Media, and Academic Work', in E. Hackett, O.

- Amsterdamska, M. Lynch, and J. Wajcman, (eds), *The Handbook of Science and Technology Studies*. 3rd edn. Boston: The MIT Press, pp. 319–352.
- Wyatt, S. (2008) 'Technological Determinism Is Dead; Long Live Technological Determinism', in E. Hackett, O. Amsterdamska, M. Lynch, and J. Wajcman, (eds), *The Handbook of Science and Technology Studies*. 3rd edn. Boston: The MIT Press, pp. 165–180.
- Yamkovenko, B. and Hatala, J. P. (2015) 'Methods for Analysis of Social Networks Data in HRD Research', *Advances in Developing Human Resources*, 17(1), pp. 40–56.
- Yang, L., Sun, T., Zhang, M. and Mei, Q. (2012) 'We know what@ you# tag: does the dual role affect hashtag adoption?', *WWW'12 Proceedings of the 21st International Conference on World Wide Web*, pp. 261–270.
- Yates, J. and Orlikowski, W. J. (1992) 'Genres of organizational communication: A structurational approach to studying communication and media', *Academy of Management Review*, 17(2), pp. 299–326.
- Yuan, E. J. (2012) 'A culturalist critique of "online community" in new media studies', *New Media & Society*, 15(5), pp. 665–679.
- Zappavigna, M. (2011) 'Ambient affiliation: A linguistic perspective on Twitter', *New Media & Society*, 13(5), pp. 788–806.
- Zappavigna, M. (2014) 'Enacting identity in microblogging through ambient affiliation', *Discourse & Communication*, 8(2), pp. 209–228.
- Ziegler, M. F., Paulus, T. and Woodside, M. (2013) 'Understanding Informal Group Learning in Online Communities Through Discourse Analysis', *Adult Education Quarterly*, 64(1), pp. 60–78.

# Appendix 1: A Simplified Framework for Contextualised Function (FCF)

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The following coding of six main categories will be used to structure the Twitter Chat event transcripts. The six categories are based on Belnap and Withers' (2008) FCF model and the number in brackets refer to the original categories given below.

Belnap and Withers 2008		
1. suggestion	contribute to dominant task	1-3 = building blocks of sequence. Add substantive content to discussion
2. proposition	contrib to dev discussion but NOT directly relate to dominant task	
3. information	Not directly address dominant task nor add to dominant structure = provide background/ context information	
4. extension	add new ideas to prior contributions	4-6 add to previous contributions
5. modification	change content of prior contributions in a significant way	
6. clarification	provide detail, illustrate, clarify prior contributions	



7. justification	provide logic for why prior contribution is valid	7-11 contribution by commenting on validity/ truth of prior contributions
8. invalidation	explicitly discredit/ negate prior contribution	
9. confirmation	simple response affirm validity of a prior contribution without explanation	
10. qualification	restrict a prior contribution by setting boundaries on its applicability	
11. evaluation	express judgement to a prior contributions meaning	
12. continuation	from same contributor, continues/ extends a contribution without change of function	12 - 15 function depends on prior contribution to which they refer
13. incompleteness	incomplete statements or too short to determine function	
14. request	solicit contributions	
15. restatement	revoice a prior contribution without significant addition	
16. simple response	simple agreement or acknowledgement	





## Appendix 3: Presentations from the Thesis

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Presentations of my research for this thesis at conferences, seminars and workshops:

(2014), 'Online Spaces of Professional Learning: seeking to understand the 'material' of Twitter discussion events' presented at the *Social Informatics Cluster Group*, University of Edinburgh, 13 June.

(2013), 'Learning and Net-working', presented at *UFHRD Workshop on Innovative Teaching in HRD*, Edinburgh, 26 October.

(2013), 'Space & flows of practice: exploring the relationship between Web 2.0 technologies and a practice perspective on HRD' Paper presented at *UFHRD 14th International Conference on HRD Research and Practice Across Europe*, Brighton, United Kingdom, 5/06/13 - 7/06/13.  
(Shortlisted for the Alan Moon Memorial Prize)

(2013), 'Whose piper and whose tune? The discursive practices in informal learning events on Twitter' Paper presented at *Twitter and Microblogging: Political, Professional and Personal Practices Conference*, Lancaster, United Kingdom, 10/04/13 - 12/04/13,

(2012), Discourses, power and communities: exploring the impacts of social media technologies on the theory and practices of informal learning. in R Silva & E Tome (eds), *Proceeding of UFHRD 2012 - 13th International Conference on HRD Research and Practice Across Europe: the future of HRD - 2020 and beyond: challenges and opportunities..* pp. 64-74, UFHRD 13th International Conference on HRD Research and Practice Across Europe: the future of HRD - 2020 and beyond: challenges and opportunities, Famalicao, Portugal, 23-25 May.  
(Shortlisted for the Alan Moon Memorial Prize)



# Appendix 4: Publications from the Thesis

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The following publications were developed from my research and are included in this Appendix:

Evans, P. (2015), 'Open online spaces of professional learning: Context, personalisation and facilitation' *TechTrends*, vol 59, no. 1, pp. 31-36.

Evans, P. (2015), Emergent discourses of learning and community formation: exploring social media for professional learning. in M Saunders & P Tosey (eds), *Handbook of Research Methods on Human Resource Development.*, Chapter 13, Edward Elgar.  
[Author Authorised Manuscript].

Evans, P. (2014), 'Exploring the relationship between discourse and a practice perspective on HRD in a virtual environment' *Human Resource Development International*, vol 17, no. 2, pp. 183-202.  
(Joint Runner-up for the Monica M Lee Research Excellence Award).



# Open online spaces of professional learning: Context, personalisation and facilitation

By Peter Evans, University of Edinburgh

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## Abstract

This article explores professional learning through online discussion events as sites of communities of learning. The rise of distributed work places and networked labour coincides with a privileging of individualised professional learning. Alongside this focus on the individual has been a growth in informal online learning communities and networks for professional learning and professional identity development. An example of these learning communities can be seen in the synchronous discussion events held on Twitter. This article examines a sample of these events where the interplay of personal learning and the collaborative components of professional learning and practice are seen, and discusses how facilitation is performed through a distributed assemblage of technologies and the collective of event participants. These Twitter-based events demonstrate competing forces of newer technologies and related practices of social and collaborative learning against a rhetoric of learner autonomy and control found in the advocacy of the personalisation of learning.

**Keywords:** assemblage, community, professional learning, social media, Twitter

## Introduction

This article explores the implications of digital technologies and networked labour (Castells, 2000; Scholz, 2013) for professional learning. The pervasiveness of digital networked technologies has contributed to the growth of distributed work practices alongside a privileging of individualised learning. Individual professionals are increasingly expected to take responsibility for their own professional development and learning activities.

Alongside this focus on the individual has been a growth in informal online learning communities and networks for professional learning and the promotion of professional identities. An example of these learning communities can be seen in the synchronous discussion events held on Twitter (Bingham & Conner, 2010; McCulloch, McIntosh, & Barrett, 2011). This article examines a sample of these events as sites where the interplay of personal learning and the collaborative components of professional learning and practice take place. In particular, it discusses how the facilitation of these events is performed through a distributed assemblage of technologies and the collective of event participants.



The term 'assemblage' is used here, as the linking of human and non-human components (such as text, images, ideas, user-interfaces, software functions or hardware) that, in coming together, generate particular effects or "perform a particular function" (Fenwick & Edwards, 2010, p12). Such an assemblage is a complex and active entanglement of social and material components that co-constitute one another so no component can be understood independently of the assemblage (Barad, 2003). This article argues that specific roles or functions in a learning event such as that of 'facilitator', are effects of these sociomaterial assemblages (Mutch, 2013) rather than of specific 'designated' individuals. So the idea of learning as a social, collective (Conradie, 2014) and material endeavour (Fenwick & Landri, 2012) is asserted in the assemblage generated in these discussion events.

## **Context: distributed labour and learning**

Working lives are increasingly taking place in networked contexts as the spread of digital technologies generates new structures of distributed work (Castells, 2000; Donnelly, 2011; Scholz, 2013). Such networked and distributed work structures have placed a premium on labour flexibility and the capacity of the workforce to learn and change. Tams and Arthur (2010) concluded that to maintain and enhance their position in this emerging and precarious labour market, individual workers: "need to engage in external networks and build personal connections that [make] knowledge transfer and new learning possible" (p. 631).

This trend towards individuals taking responsibility for their learning is reinforced as employers increasingly focus on only providing training required for regulatory and legal compliance purposes (Marks & Huzzard, 2010).

As work practices become distributed, temporary and mobile, traditional models of professional learning that: "assume shared goals, proximity of fellow workers and the availability of mentors" (Malcolm & Plowman, 2014, p. 1) are increasingly less relevant. Professional learning is becoming individualised and person-centred (Fenwick 2012) resulting in "self-programmable" workers that Castells (2000) characterises as having a capacity for change through self-directed learning. In turn, self-directed learning is made more realisable, visible and collaborative through social media technologies (Wagner et al., 2008) and the emergence of online learning communities sitting outside traditional organisational boundaries (McCulloch et al., 2011; Sloep, 2014).

Still there remains a wider public expectation that professional practice involves the reproduction of some form of common knowledge (Mäkitalo, 2012). Specialised knowledge remains a key component of professional identity (Robinson, Anning, & Frost, 2005). Yet professional knowledge in general is changing from stable "bodies" of knowledge to more contingent and fluid forms of professional knowledge-in-practice that is mirrored in the informal complexities of learning communities and networks (Sloep, 2014). Professional knowledge is generated through the social sharing and refining ideas in a network or community with a common domain of interest (Sloep, 2014) rather than being transmitted by institutions. Furthermore, technologies used in such learning communities are not simply a means for the discussion of professional practice but also embody or enact that practice (McInerney, 2009). So, these communities assemble together people with digital network technologies engaged in professional identity generation in sites of professional learning.

## **Context: Personalisation and PLEs**

The focus on the digitally networked and "programmable" individual learner is reflected in the emergence of the notion of connectivism (Siemens, 2005) and the creation of Personal Learning Environments (PLEs) that are "in the control of the learner" (Fournier & Kop, 2010, no page). Connectivism is explained as "a learning theory for the digital age" (Siemens 2005) where learning occurs through the individual learner making connections between nodes in a network. A connection in this context is not a passive linking of nodes but involves a reciprocal relationship whereby a change in one node leads to a change in another (Downes, 2014). While learning depends on the diversity of social interactions across a network, the emphasis in connectivism is on the formation of personal and individual networks (Kop & Hill, 2008). Similarly, PLEs use network technologies to link learners with materials and services to support their learning, enabling the sharing of learning and feedback from others (Kop, 2010; Wilson et al., 2009). A PLE can be seen as the operationalisation of connectivism.

The attention on the individual and personal in the discourse of the PLE is in tension with the idea of professional learning as a collective promotion of particular identities by legitimising certain practices within a given professional domain. Personal professional learning is constrained by how a wider learning network understands the learner's goals and

intentions; how that network identified specific aspects of professional knowledge as legitimate; and how the technologies used may enact legitimated and illegitimated practices. So the assemblage of a learning network also facilitates the shaping, direction and “ownership” of the learning processes of the individual.

## The Twitter Discussion Events

These tensions are demonstrated in micro-blogging discussion events intended to support professional learning (Bingham & Conner, 2010; McCulloch et al., 2011). The discussion events, usually taking place on Twitter, are open to anyone using the internet. The synchronous events are organised through hashtags (#) to aggregate contributions and interactions (Bruns & Stieglitz, 2013). There are many such professional discussion events taking place including: #imcchat (integrated marketing communication); #innachat (innovation); #lrnchat (corporate and academic learning); and #talentnet (recruitment industry) (see Gnosis Media Group, n.d.).

Interactions in Twitter employ a number of functions of the application such as Replies; User Mentions; Retweets and hashtags. These functions are termed by Purohit et al., (2013) as “platforms” of conversation. These platforms contribute to the assemblages that facilitate the emergence of coherence in the dialogues during the events.

Two Twitter event series targeting professionals working in the education and learning sectors were selected for investigation in this article. The discussion events sampled occur on a weekly or fortnightly basis themed on broad topics of professional interest such as the use of learning technologies, learning communities, motivation and learning or learning analytics. Based on these themes, the discussion events foster collaborative learning spaces aligned to personal professional interests (Bradley & MacDonald, 2011) while simultaneously and constantly engaging in the collective renegotiation of those interests (Evans, 2014).

## The Event Structure

The structure of the discussion events is similar to “an online, open brainstorm-like session” or “Tweetstorm” (Sie et al., 2013, p. 60). This involves a six stage process (see Figure 1) moving from context and topic setting through the main event discussions followed by aggregation and analysis of the Tweets to arrive at agreed conclusions on the topic. However, in

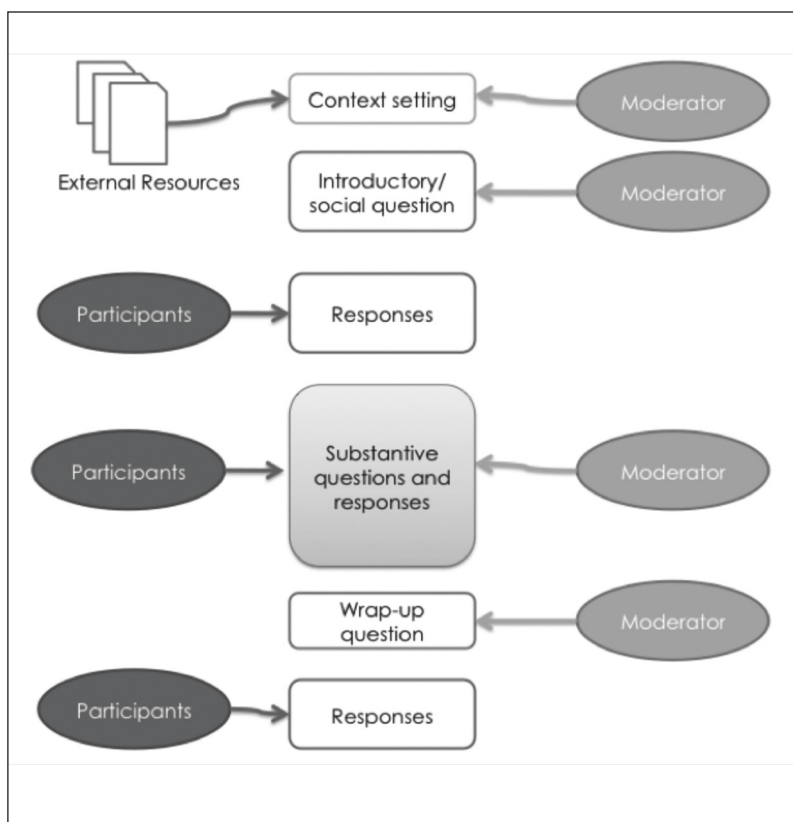


Figure 1: Structure of discussion events.

the case of these discussion events, the Tweets were not aggregated or analysed and so no common conclusions were reached. Rather, the events finished with simple ‘wrap up’ questions requesting individual views on the topic. So the social processes of negotiating meanings were not resolved in these events, reflecting the highly contingent and situated nature of personal professional learning.

The role of the moderator or ‘official’ Twitter account was limited to Tweeting the set questions. So the events provide were ‘other-organised’ (Fiedler, 2014, p. 4) open learning opportunities without the input of the instructor or active facilitator that is often seen as crucial to successful learning communities (Ala-mutka, 2009). Yet, many of the functions of the facilitation of learning can be seen being performed during the discussion events.

## Facilitation

### Facilitating behaviours

In discussing the facilitation of online learning, Wang, Anstadt, & Goldman (2014) state that:

Facilitation includes: (1) inspiring active involvement of all members and shaping of their useful roles, (2) attending to the explicit group process, (3) encouraging group communication,

and communication, Social Network Analysis (Jones, 2013) shows how two participants in one of the event series had a crucial role in linking other individual participants and sub-groups within the overall event communities. Both were located in different subgroups of the discussion participants but through mobilising the Reply and Retweet functions of Twitter they generated links across the different networks of event participants.

In terms of attending to groups processes, some facilitation practices acted to constrain the discussions by, for example, asserting the illegitimate status of a particular learning model: Can we have another question to keep us from wasting time burying [that model]?

At other times, links of images were used to disparage or delegitimise certain professional practices such as off-the-job training. By such strategies, the learning community was binding the community to a particular professional identity and competences.

There was little evidence of the active clarifying and summarising of discussions during the course of the events. Some participants did engage different aspects of their PLEs by, for example, posting later reflections on the events on their own blogs as a form of retrospective coherence-making and reflective learning:

When reflecting on what I learned [during the event], I ...[review] the questions that were asked....”

So participants in the event did engage in retranslating their professional identities and practices in other locations in their PLE, mobilising other technologies to enact different professional practices, in this case, reflective writing and learning, which could not be effectively enacted in Twitter.

#... :-)

## Facilitating technologies

Facilitation behaviours during these discussion events can be seen in the interactions between participants, but the facilitation of learning was also performed by the software and “platforms” (Purohit et al., 2013) of Twitter itself. Most obviously, the hashtag function acted to aggregate the Tweets as visibly contributing to the event discussions. The hashtag performed the facilitation functions of encouraging group communication, clarifying the content of discussion and organising the structure of the group. As Procter et al. (2013, p. 198) argue, the hashtag function collaborates with the event participants:



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structure within the Tweet timeline that facilitates information discovery

This co-creation is performed in 'real-time' throughout the discussion event (Small, 2011).

Similarly, the '@\_user mention' functions acted to facilitate the shaping of 'useful' roles of participants, encourage group communication and connecting the thoughts expressed between participants. These functions were used by those key 'networked' individuals cited above (Figure 2) to facilitate the structural cohesion of the event community.

Thus the assemblage of the behaviour of the discussion event participants and the functions of the Twitter technologies can be seen to generate a distributed model of the facilitation of online learning.

## Conclusion

Learning spaces such as these Twitter discussion events demonstrate the competing forces of newer technologies and the related practices of social and collaborative learning against the rhetoric of learner autonomy and control found in the advocacy of PLEs (Hodgson, McConnell, & Dirckinck-Holmfeld, 2012).

While the role of the facilitator is widely seen as crucial to the success of online learning and communities, this article argues that the facilitation of these Twitter events was distributed between the technologies used and the participants in the learning community. Rather than emphasising the individual control of learning through a PLE, this notion of distributed facilitation suggests learning and identity is framed by social, participative and on-going performances of what is legitimate and illegitimate professional learning and practice.

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## References

- Ala-mutka, K. (2009). *Review of Learning in ICT-enabled Networks and Communities*. Institute for Prospective Technological Studies, JRC, European Commission. EUR 2406.
- Barad, K. (2003). 'Posthumanist performativity: toward an understanding of how matter comes to matter. *Signs*, 28(3), 801–831.
- Bingham, T., & Conner, M. (2010). *The New Social Learning*. San Francisco: Berrett-Koehler Publishers, Inc.
- Bradley, A. J., & MacDonald, M. P. (2011). Social media versus knowledge management. Retrieved September 26, 2013, from <http://blogs.hbr.org/2011/10/social-media-versus-knowledge/>
- Bruns, A., & Stieglitz, S. (2013). Towards more systematic Twitter analysis: metrics for tweeting activities. *International Journal of Social Research Methodology*, 16(2), 91–108. doi:10.1080/13645579.2012.756095
- Castells, M. (2000). Materials for an exploratory theory of the network society. *The British Journal of Sociology*, 1(51), 5–24.
- Conradie, P. W. (2014). Supporting Self-Directed Learning by Connectivism and Personal Learning Environments. *International Journal of Information and Education Technology*, 4(3), 254–259. doi:10.7763/IJiet.2014.V4.408
- Donnelly, R. (2011). The coalescence between synergies and conflicts of interest in a top consultancy firm: An analysis of the implications for consultants' attitudes and behaviours. *Human Resource Management Journal*, 21(1), 60–73.
- Downes, S. (2014). Connectivism as Learning Theory. Retrieved August 18, 2014, from <http://halfanhour.blogspot.co.uk/2014/04/connectivism-as-learning-theory.html>
- Evans, P. (2014). Exploring the relationship between discourse and a practice perspective on HRD in a virtual environment. *Human Resource Development International*, 17(2), 183–202. doi:10.1080/13678868.2014.886889
- Fenwick, T., & Edwards, R. (2010). *Actor-Network Theory in Education*. London: Routledge.
- Fenwick, T., & Landri, P. (2012). Materialities, textures and pedagogies: socio-material assemblages in education. *Pedagogy, Culture & Society*, (December), 37–41.
- Fiedler, S. (2014). "Open-sourcing" personal learning. *Journal of Interactive Media in Education*, 2–3.
- Fournier, H., & Kop, R. (2010). Researching the design and development of a Personal Learning Environment. In *PLE Conference*, 6–8 June. Barcelona.
- Gnosis Media Group. (n.d.). Tweetchat Wiki/By Subject. Retrieved March 28, 2013, from [http://www.gnosisarts.com/index.php?title=Tweetchat\\_Wiki/By\\_Subject](http://www.gnosisarts.com/index.php?title=Tweetchat_Wiki/By_Subject)
- Hodgson, V., McConnell, D., & Dirckinck-Holmfeld, L. (2012). The Theory, Pedagogy and Practice of Networked Learning. In L. Dirckinck-Holmfeld, V. Hodgson, & D. McConnell (Eds.), *Exploring the Theory, Pedagogy and Practice of Network Learning* (pp. 291–305). New York, NY: Springer New York. doi:10.1007/978-1-4614-0496-5
- Kop, R. (2010). The design and development of a personal learning environment: researching the learning experience. In *European Distance and E-learning Network annual Conference 2010*. Valencia, Spain.
- Kop, R., & Hill, A. (2008). Connectivism : Learning theory of the future or vestige of the past ? *International Review of Research in Open and Distance Learning*, 9(3).
- Mäkitalo, Å. (2012). Professional learning and the materiality of social practice. *Journal of Education and Work*, (October), 37–41.
- Malcolm, I., & Plowman, L. (2014). Knowledge, technology

- and the professional learning of localisers. *Professions and Professionalism*, 4(1), 1–15. doi:http://dx.doi.org/10.7577/pp.617
- Marks, A., & Huzzard, T. (2010). Employability and the ICT worker: a study of employees in Scottish small businesses. *New Technology, Work and Employment*, 25(2), 167–181. doi:10.1111/j.1468-005X.2010.00246.x
- Mazzolini, M., & Maddison, S. (2007). When to jump in: The role of the instructor in online discussion forums. *Computers & Education*, 49(2), 193–213. doi:10.1016/j.compedu.2005.06.011
- McCulloch, J., McIntosh, E., & Barrett, T. (2011). *Tweeting for Teachers: how can social media support teacher professional development?*
- McInerney, P.-B. (2009). Technology Movements and the Politics of Free/Open Source Software. *Science, Technology, & Human Values*, 35(2), 206–233.
- Mutch, A. (2013). Information and Organization Sociomateriality — Taking the wrong turning? *Information and Organization*, 23, 28–40.
- Procter, R., Vis, F., & Voss, A. (2013). Reading the riots on Twitter: methodological innovation for the analysis of big data. *International Journal of Social Research Methodology*, 16(3), 197–214. doi:10.1080/13645579.2013.774172
- Purohit, H., Hampton, A., Shalin, V. L., Sheth, A. P., Flach, J., & Bhatt, S. (2013). What kind of #conversation is Twitter? Mining #psycholinguistic cues for emergency coordination. *Computers in Human Behavior*, 29(6), 2438–2447. doi:10.1016/j.chb.2013.05.007
- Robinson, M., Anning, A., & Frost, N. (2005). When is a teacher not a teacher? Knowledge creation and the professional identity of teachers in multi-agency settings. *Studies in Continuing Education*, 27(2), 175–191.
- Rovai, A. P. (2007). Facilitating online discussions effectively. *The Internet and Higher Education*, 10(1), 77–88. doi:10.1016/j.iheduc.2006.10.001
- Scholz, T. (2013). Introduction. In *Digital Labour: the internet as playground and factory* (pp. 1–9). London: Routledge.
- Sie, R., Patariaia, N., Boursinou, E., Rajagopal, K., Falconer, I., Bitter-Rijkema, M., ... Sloep, Peter, B. (2013). Goals, Motivation for , and Outcomes of Personal Learning through Networks : Results of a Tweetstorm. *Educational Technology & Society*, 16(3), 59–75.
- Siemans, G. (2005). Connectivism: A Learning Theory for the Digital Age. *International Journal of Instructional Technology and Distance Learning*, 2(1).
- Sloep, P. B. (2014). Networked Professional Learning. In A. Littlejohn & A. Margaryan (Eds.), *Technology Enhanced Professional Learning: Processes, Practices and Tools* (pp. 97–108). London: Routledge.
- Small, T. a. (2011). What the Hashtag? *Information, Communication & Society*, 14(6), 872–895. doi:10.1080/1369118X.2011.554572
- Wagner, N., Hassanein, K., & Head, M. (2008). Who is responsible for E-Learning Success in Higher Education? A Stakeholders' Analysis. *Educational Technology & Society*, 11(3), 26–36.
- Wang, C. X., Anstadt, S., & Goldman, J. (2014). Facilitating Group Discussions in Second Life. *MERLOT Journal of Online Learning and Teaching*, 10(1), 139–152.
- Wilson, S., Liber, O., Johnson, M., Beauvoir, P., Sharples, P., & Milligan, C. (2009). Personal Learning Environments: Challenging the dominant design of educational systems. *Journal of E-Learning and Knowledge Society*, 3(2. June 2007), 27–38.

**Title:** Emergent discourses of learning and community formation: exploring social media for professional learning

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## Emergent discourses of learning and community formation: exploring social media for professional learning

### Summary

This chapter describes an investigation of the social practices and community-forming activities associated with professional development activities in social media environments. The study explores, using Actor Network Theory and Discourse Analysis, how competing projections of power emerge and are “processed” in a specific online environment to impact on community creation through the discursive practices of professional learning. The chapter highlights the usefulness and challenges of this research approach to the study of social media environments for learning.

### Introduction

This chapter describes a research approach used to analyse one of a growing number of regular Twitter discussion events for collaborative professional development activities. Twitter is described (Lerman & Ghosh 2010) as:

*... a popular social networking site that allows registered users to post and read short (at most 140 characters) text messages, which may contain URLs to online content, ... A user can also retweet or comment on another user's post...*

Discussion events on Twitter have become increasingly common in recent years (McCulloch, et al, 2011; Bingham & Conner, 2010). These discussion events are organised through the convention of hashtags (#) in combination with a shortened name as an explicit ordering mechanism (Bruns, 2011). There are over 100 regular professional events hosted on Twitter including: #ARchat (business analysts); #brandchat (branding); #edchat (education); #imcchat (integrated marketing communication); #pr20chat (PR and social media); #smbiz (small business); and #talentnet (recruitment industry) (see Gnosis Media Group, n.d).

The events examined for this particular study were selected from the regular Twitter discussion events focused on Human Resource Development (HRD) and learning and development practitioners.

## The research site

Each of the selected Twitter discussion events were organised around particular themes. Event 1 was on the use of metrics in learning and development, Event 2 was on crowd sourcing (the process of problem solving by outsourcing the activity to an undefined network of people, the 'crowd') and Event 3 was on skills and competence development for learning and development practitioners.

	Nos Participants	Nos of Tweets in the event	Mean average Tweets per minute <sup>1</sup>
Event 1	54	922	10.2
Event 2	72	773	8.6
Event 3	68	518	8.6

As with many online research sites, the data boundaries of these events cannot be clearly prescribed. Schneider and Foot (2005: 158) use the term web sphere as:

*... not simply a collection of web sites, but as a set of dynamically defined digital resources spanning multiple websites deemed relevant or related to a central event...*

The discussion event web spheres can be traced through emerging and expanding networks of digital resources and interactions. These include web pages providing the discussion questions, participants linking to other resources using URLs in their Tweets as well as posting reflections about the events on other web sites and blogs.

Web spheres spread far beyond what is practical for a researcher to explore and so conscious decisions are required from the researcher in bounding a 'manageable' research 'site'. This places an onus on the researcher to be sensitive to the implications of such decisions on what is included and excluded in the collection and analysis of the data.

Furthermore, the online research site is unstable and fluid (Fenwick & Edwards, 2010) and it is this interactive and dynamic nature of the research site that is key to understanding the selection this approach to online research.

## Discourse Analysis

Discourse analysis (DA) is concerned with studying "language in use" (Nunan, 1993: 7). Heracleous (2006) identifies two levels of discourse: communicative action as interactions between individuals to, for example, share experiences

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<sup>1</sup> Noting that event durations varied



or build inter-personal relations; and deeper discursive structures that 'guide' communicative actions. Discursive structures do not determine communicative actions but are 'drawn on' in the development and negotiation of the broader discourses within a group.

Bragd et al (2008) argue that a discursive community forms through the generation of common meanings in discussion. So the focus of the research shifts from individual utterances to the overall discussion (Dennen, 2008) content and form. Discursive communities enable learning as sense-making that seeks to reinforce and re-produce common understandings among the members and highlight perspectives that differentiate members from 'others' outside the community (Bragd et al, 2008). These deeper discursive structures can also be understood as the legitimised discourses of professional practice (Fenwick et al, 2012) emerging from the stabilisation of the more fluid communicative actions.

Belnap and Withers (2008) developed the Framework for Contextualised Function (FCF) for the coding of unstructured educational group work interactions. They suggest categorising exchanges as nuclear (stand alone) or bounded within a sequence of exchanges. Bounded exchanges can be preparatory, to establish communication; embedded, to confirm uptake or repair a breakdown between exchanges or dependent, to add to previous utterances or justify a response. Underpinning different exchanges are different speech functions (Fairclough, 2003) such as questions, statements, predictions, facts, evaluations and so forth that may require a specific response. A simplified version of the Belnap and Withers framework was adopted to analyse the conversational structures of the Twitter discussion events. This provided an entry point in identifying and analysing collaborative sense-making when looking at the discourse events as being distinctly learning orientated.

In this research, the focus of analysis was on identifying the processes whereby communicative actions stabilise as deeper discursive structures or resources. Such processes can be analysed through both the content and structure of the discourses in a form of dialogue analysis as suggested by Dennen (2008). From this, learning can be understood in terms of the re-production of these discursive resources as the legitimated professional practices of the learning and development practitioner.

## **The research framework**

On seeking an appropriate theoretical perspective for the research, initial analysis of the discussion events found an exaggeration of many of the problematic features of unstructured discussions identified by Belnap and Withers (2008: 8): sequences extending over many exchanges; overlapping exchanges and sequences; short sequences being cut-off prior to a

conclusion and sequences re-emerging later in discussions. The norms of participant interactions appeared to be under almost constant renegotiation. Also, non-human elements appeared to have an impact suggesting more than passive mediation. Twitter apps such as Tweetdeck, which aggregates and organises Twitter 'streams', arguably shape how Twitter discussions are structured and 'consumed'. So the initial research 'site' was identified with complex interactions between language, collaboration, people, artefacts and control (Gherardi, 2000; Nicolini et al, 2003; Guzman, 2009; Geiger, 2009; Tuomi, 2000). The combination of inherent emergence, instability and ambiguity within a socio-material framework (Fenwick & Edwards, 2010) suggested that Actor Network Theory (ANT) would provide a potentially insightful 'lens' to the analysis of the data gathered.

### Actor Network Theory

This study made use of three key aspects of ANT: translation; network assemblages and symmetry. ANT has been described as a sociology of translation (Latour, 2005) whereby translation refers to the interpretation and reinterpretation of knowledge or meaning as a means of enrolling actors into a particular network (Mitev, 2009). Translation works to both generate as well as order and stabilise networks (Fenwick & Edwards, 2010: 9). ANT's interest in network assemblages is less concerned with the size of networks but with the dynamics of influence in and on networks underpinning a central concern of ANT with power as persuasion (Fox, 2005; McLean & Hassard, 2004). Finally, symmetry is the avoidance of subject-object dualism that privileges the human while avoiding technological determinism (Miettinen 1997). So ANT understands 'actors' as being either human or non-human active participants within networks.

### Ethical considerations of researching online

Researching Twitter discussion events pose a number of ethical issues that need to be addressed under the rubric of doing no harm to others.

The AoIR 2012 policy, *Ethical Decision-Making and Internet Research* states (:7):

*... privacy is a concept that must include a consideration of expectations and consensus. Social, academic, or regulatory delineations of public and private as a clearly recognizable binary no longer holds in everyday practice.*

The Twitter discussion events are public events open to anyone with a Twitter account. The archives of each event require no more than internet access as these are kept on event websites and are accessible to anyone. However, it can be argued that such communities rely on aspects of mutual trust and

respect that may be undermined by a 'lurking' researcher (Eysenbach & Till, 2001).

This research did not involve interventions or lurking in live events but rather used publicly available discussion archives that may be regarded as 'public domain' data (Androutsopoulos, 2008). As the research site was treated as in a public space, so individual explicit consent for participation was not sought and participants have been made as unidentifiable as possible (Eysenbach & Till, 2001). In addition, the event organisers were contacted to inform them of the research and provide an opportunity to raise objections to the research (AoIR, 2012).

Participant names have been altered although their essential content, structure and capitalisation has been retained including where a corporate or name has been used as well as the gender indicated by that name. So, "TrainingPete" is an anonymised Twitter name of a male participant who also demonstrated a clear professional label in that Twitter name. It does remain possible that an altered name is identical to a name of one of the over 200 million Twitter users worldwide (O'Carroll, 2012) but any similarities are coincidental.

A further difficulty arises in the treatment of quotations where anonymisation can be undermined by simple online searches to reveal the author. Furthermore, an anonymous quote may be seen as an infringement of the author's intellectual property (Eysenbach & Till, 2001). Mindful of the need for a pragmatic approach to anonymity in the context of a 'public space' research site, quotes from specific Tweets (although not from other articles or papers) have been altered through ellipses to retain both their meaning and the anonymity of the participant. However, it is acknowledged that some quotations will remain traceable.

## **The Research**

The following analysis attempts to demonstrate how ANT operationalised through discourse or dialogue analysis may provide a useful and insightful approach to our understanding of interactions in open online environments for learning. The research approach described here commences with an analysis of the discursive structure of the Twitter interactions which provides the basis for exploring how community and identity issues are addressed in the course of the interactions. Finally, the effects of mediating technology as a non-human actor will be explored.

### **Structure of the discourse**

The discussion events can be considered as cooperative learning events. Yet, as analysis of classroom discourses have tended to look for a sequence

structure of *initiate – response – evaluation/ feedback* (Bloome et al, 2005) so events that lack an explicit pedagogical focus tend to have a less clear structure (Belnap & Withers, 2008: 8). The functions of utterances lead to patterns of interactions that form traceable sequences of exchanges (Belnap & Withers, 2008). But, as different functions and participants become involved in such sequences, the structures of these sequences becomes less clear as a result of increasingly diverse patterns emerging in the discourses (Bloome et al, 2005).

Belnap & Withers (2008) provide 16 functional categories for moves in unstructured learning events. The categories of particular interest here are the building blocks of sequences: (a) suggestions directly addressing the dominant task and (b) propositions contributing to the development of the discussion. Moves and exchanges can be linked through the use of (c) modifications and (d) clarifications. The validity of statements can be addressed through: (e) justifications; (f) invalidations; (g) confirmations; (h) qualifications; (i) restatements and (j) simple responses as basic acknowledgements of statements often used to indicate acceptance. Restatements (i) are often given as retweets and play an important function in Twitter discussions.

As can be seen in Table 1, sequences tend to build up over a number of short exchanges. The sequence is initiated by a direct question from the moderator receives only one direct Suggestion. However, the initiating question also appears to provide an umbrella for a series of propositions contributing to the broader topic of the event that, in turn, generate further exchanges.

**Table 1**

8:45:18	Initiation				
8:46:34	Suggestion A				
8:47:07		Proposition B			
8:47:32			Proposition C		
8:47:59				Proposition D	
8:48:13			Restate (Retweet)		
8:48:22			Restate (Retweet)		
8:48:36					Proposition E
8:48:50				Restate (Retweet)	
8:48:55		Extension/ qualification			
8:49:45				Simple response	
8:49:49				Restate (Retweet)	
8:50:34				Invalidation/ new proposition D2	
8:50:35	Restate (Retweet)				
8:51:06				Qualification	
8:51:26				Restate (Retweet)	
8:53:24		Qualification			
8:54:24		Extension/ new proposition B2			
8:55:35					Restate (Retweet)
8:55:38					Extension
8:56:16	Restate (Retweet)				

Proposition B2 initiates a new exchange of requests for information on the future progress of an organisational change initiative. This exchange of requests terminates when the original author of Proposition B2 confirms that further information would be posted to the event blog.

However, the sequence commencing under Proposition D appears to terminate at a restatement (at 8:51:26).

The patterns of initiation, proposition, response, extension and qualification were replicated across the different Twitter events. Throughout the events, sequences are displayed in a fragmented manner co-terminously with other sequences, such that each exchange sequence becomes difficult to follow. Twitter is particularly difficult as the discussion event is often presented as a single chronological list of Tweets so it is often difficult to identify whether a Tweet is part of an existing exchange or not. This difficulty may account for the seemingly short duration of each sequence 'run'.

So these Twitter events appear to exaggerate many of the key problem features of unstructured discussions identified by Belnap and Withers (2008: 8) including: sequences extending over many exchanges; overlapping exchanges and sequences; short sequences and sequences re-emerging later in discussions. This suggests a lack of event coherence and stability that should be more problematic, but participants appear to develop specific strategies to deal with this including adopting specific approaches to establishing conversational floors.

Simpson (2005) refers to conversational floors in terms of establishing cohesion and coherence in the discourse (2005: 338). The conversational floor performs the function of establishing the topic of the conversation. It is noticeable that Proposition B generates direct dialogue in the sense of an extension and qualification and goes on to generate further exchanges establishing a conversational floor as a translation of the initiating question. Such attempts to capture conversational floors may be to control the discourse direction or alternatively as a means to stimulate discussions relevant to the formal topic of the event.

While the structures of these Twitter discussion events are generally limited, unstable, dynamic and fluid, there were patterns that tended to indicate some element of deeper discursive structure. The emergence of such discursive structures becomes more apparent through the analysis of the discourse content itself.

### **Community and identity**

Bloome et al (2005) use a perspective of thematic coherence as establishing a discourse community, that is a network assemblage of actors. Networks and communities emerge as actors seek the support of others by translating their perspectives and enrolling them into the network (Mitev 2009).

For example, in discussing emerging skills and competence requirements for Learning and Development practitioners, participants appeared to assemble around a performative translation of HRD practice (Gold et al, 2010):

**Table 2**

1	<b>TrainingPete</b>	... less focus on 'training' and more focus on 'performance support'. #...
2.	<b>JoanMar2</b>	... Yes, ... We need to [show] measureable ROI and performance improvement #...
3.	<b>TrainingPete</b>	First thing is a new mindset [and by asking what is] the least intrusive way to address [a] performance issue? #...
4.	<b>ILPT</b>	#... set performance ... objectives ... measure against those [do not] just track learning activity #wasteoftime

Tweets 1 – 3 place the emphasis on a performative discourse in terms of changes in professional practice. Tweet 1 translates this as a change of emphasis rather than a fundamental change of the practitioner discourse. Tweets 2 – 3 appear to suggest a mobilisation of the discursive practices of performance as the necessary means of addressing the challenges faced by practitioners. However, Tweet 4 can be seen as an attempt to position the discourse practice of performance as a legitimated professional knowledge and discursive resource (Mäkitalo, 2012) with alternatives being dismissed as “a waste of time”.

Through the different events, particular perspectives became clearly dominant in the discourse. Alternative viewpoints were ignored by the wider community or explicitly dismissed rather than examined and discussed. For example, the Kirkpatrick approach to evaluation was rejected in the events to the extent that merely mentioning the model triggered indirect ridicule from participants arguably as a mechanism to block any discussion of why the model was deemed so inadequate.

**Table 3**

1	<b>jason_bean09</b>	... tonight new drinking "terms" Kirkpatrick and Level ...#...
2	<b>miranda0404</b>	... I think that Kirkpatrick has a shot at the nobel prize too ... #...
3	<b>lknut</b>	Levels 1-3 are for wimps #...
4	<b>lknut</b>	Can we have [a different] question [to avoid] wasting time burying Kirkpatrick? #...

Line 4 presents an argument for directing the discourse based on an assumed legitimation from rejecting the Kirkpatrick model. The community of participants tended to seek consensus and bracket differences (Fairclough, 2003: 41-2) through dismissal or humour.

The communicative actions included using visual images to support discursive structures. For example, in mobilising a particular perspective on

systematic learning design and off-the-job training as an ineffective approach to L&D practices, the following image was used:



Image: G.Rom. K1. 7598 "Romsey School, c 1910" from The Cambridge Collection, Cambridge Central Library.

The image is one of passive and un-engaging learning. The poor quality of the experience is replicated in and emphasised by the low quality of the image. The blurring of the pupils' faces appears to emphasise the impersonal and anti-individual nature of systematic learning design methods. The image suitably summed up this critique of the HRD discourses of formal and instructional training.

A more nuanced and complex discussion of the problems of HRD practice began to emerge in the discussions. So members of this discursive community were identified as understanding the need to change HRD practices. Yet there were implicitly 'other' HRD practitioners who were not able to move away from the formal and instructional practices of 'traditional' HRD through 'fear and ignorance'. So the event HRD community identified itself simultaneously as being part of the traditional HRD community failing to meet the needs of 'the business' but also as distinct from that HRD community as they present themselves as demonstrating aspects of newer and progressive HRD practices.

Therefore, these social media environments appear to mirror Billet's (2004) findings on workplace learning in terms of the tensions identified between established figures and newer participants as well as between perceived different institutionalised interests. It can be seen that such informal discussion



events and communities can act simultaneously as sites for both 'restrictive' and 'expansive' learning reflecting similar discursive power relations specific to those found in other, more formal, learning environments (Fuller & Unwin, 2004). The dynamic nature of the negotiation of these tensions and relations could be understood in terms of the ANT concepts of translation, enrolment, network assemblages and obligatory passage points as a perspective of the process of elusive, diffuse and ever present power relations and dynamics of these Twitter discussion events.

Finally, the implications of the ANT notion of symmetry in research in open online discussion event will be explored.

### Mediating technology

The notion of symmetry in ANT explores the impact of non-human 'actors' actively participating in network assemblages such as the discussion events (Fenwick & Edwards, 2010). This goes beyond acknowledging that technology is necessary for these types of synchronous but dispersed social discussion events to actually take place (Irwin & Hramiak, 2010) but includes how the technological infrastructure itself translates discourses and has its own discursive structures and practices. For example, the way in which Twitter applications aggregate, organise and present Twitter 'streams' shape how Twitter discussions are structured and 'consumed' as well as contributing to the inclusive and exclusive nature of the discussion exchanges and sequences (Fox 2005) and so to the communicative actions and structures.

Fox's (2005) analysis of the role of newspapers illustrates the role of non-human actors in the generation and maintenance of the imagined community of the nation. Discussing the layout of newspaper front pages as consisting of a number of unrelated news stories, Fox asserts that (2005: 103):

*The regular reader thus keeps abreast of multiple narrative threads that weave the fabric of his or her imagined world. But this is not experienced as a simulated world but as the real world ... By following the threads of news over time, the reader maintains a sense of a world known in common with distant, imagined others...*

Fox concludes:

*In terms of 'symmetrical analysis', the non-human elements in the networks of 'print capitalism' made the 'imagined community' of the nation ... a social and cultural reality.*

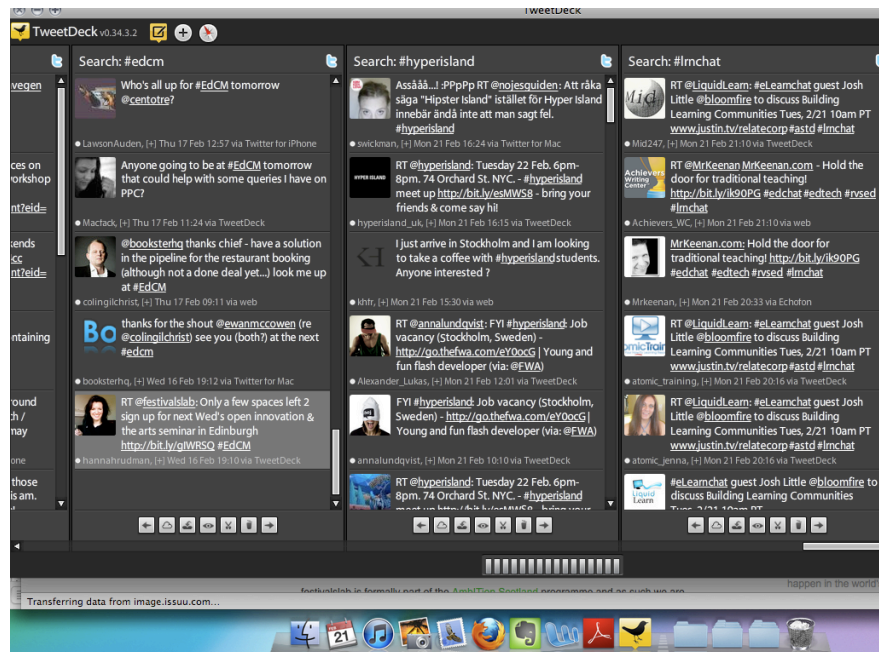
Similarly, using a browser or specific applications such as Tweetdeck<sup>2</sup>, Tweets are co-visible to the participant in a single column stream in time order

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<sup>2</sup> Available via <http://www.tweetdeck.com/>

enrolling individuals in making contributions across multiple sequences (Simpson, 2005).

Yet, the user may follow a number of different columns on the Twitter applications organised by specific search terms and hashtags:



(Screenshot of Tweetdeck)

A single Tweet included in the discussion event may appear in a number of columns: the main timeline; a 'mentions' column where Tweets that mention the specific user can be found; a column set-up to follow the hashtag of the discussion event and another column set up to search for specific key words or a different hashtag. As a result, the participant can experience a discussion event through different column 'threads' and different temporal frames. A single Tweet appearing in multiple columns may be consumed as indicative of the broader network of communities or networks that the user is enrolled in. Also, participants may be contributing to the discussion event through placing their contributions in a different network assemblage represented as a column in the software. So the available technology influences how these discussion events are understood by users.

## Conclusion

The use of social media has become increasingly prominent in a range of organisational activities including learning and development, knowledge-sharing and employee engagement, (CIPD, 2013) as well as being increasingly adopted as informal professional learning environments. So there is the need for research approaches appropriate to the practices associated with such technologies and environments where the main mechanism of practice is textual (Koole 2010).

This chapter describes an approach to the research and investigation of open and informal learning events on the micro-blogging platforms Twitter that used a discourse analysis within an ANT based framework. Through this research approach, the study found that these discussion events show high levels of instability and volatility blurring distinctions between information producers, distributors and consumers (Androutsopoulos, 2008; Pata, 2009) within discursive communities. Furthermore, these network or community-forming learning events remain social practices with specific power relations operating within them and are not as informal and unstructured as they are often described. Rather, they are structured by the nature of the technologies used and by particular relations of power and interest mediated through the discursive structure of the community.

The research discussed in this chapter presents an approach to the study of the micro-political components of HRD practice (Vickers & Fox, 2010) through interactions between human and non-human actors. The micro focus of an ANT research approach may, for example, not just identify examples of restrictive learning (Fuller & Unwin, 2004) but also to explain what practices generate such restrictive effects. The approach outlined in this chapter provides an approach to research HRD as a social and discursive construct (Lawless et al, 2011) by studying the mobilisation of discursive resources in the practice of HRD (Francis 2007). As such, ANT can be positioned as part of the 'practice-turn' in social research (Sorensen, 2009).

## Annotated reading

Fenwick, T. and Edwards, R. (2010) *Actor-Network Theory in Education*. London: Routledge.

This book provides an overview of the breadth of ANT and how the concepts of ANT have been and could be applied in educational settings including vocational education as well as lifelong and workplace learning.

Journal of Education and Work, 25:1. Special Issue: Reconceptualising Professional Learning in a Changing Society.

This special issue of the Journal is focused on socio-material approaches (including ANT) to conceptualising and researching professional learning in practice.

## References

Androutsopoulos, J. (2008). Potentials and Limitations of Discourse-Centred Online Ethnology. *language@internet*, vol 5. Available at: [http://www.languageatinternet.de/articles/2008/1610/index\\_html/?searchterm=None](http://www.languageatinternet.de/articles/2008/1610/index_html/?searchterm=None)

Last accessed: 22 November 2010

AoIR. (2012). *Ethical decision-making and Internet research 2.0: Recommendations from the aoir ethics working committee*. Available at: <http://www.aoir.org/reports/ethics2.pdf>

Last accessed: 2 March 2013

Belnap, J. K., & Withers, M. G. (2008). Discourse Analysis : The problematic analysis of unstructured / unfacilitated group discussions. *Conference on Research in Undergraduate Mathematics Education, February*.

Billet, S. (2004). Workplace Participatory Practices: conceptualising workplaces as learning environments. *Journal of Workplace Learning*. 16(6) 312 - 324

Bingham, T. and Conner, M. (2010). *The New Social Learning*. San Francisco: Berrett-Koehler Publishers, Inc.

Bloome, D., Carter, S.P., Christian, B.M., Otto, S. and Stuart-Faris, N. (2005). *Discourse Analysis and the Study of Classroom Language and Literacy Events*. Mahwah, New Jersey: Lawrence Erlbaum Associates

Bragd, A., Christensen, D., Czarniawska, B. & Tullberg, M. (2008). Discourse as the means of community creation. *Scandinavian Journal of Management*, 24(3):199-208

Bruns, A. (2011). How Long is a Tweet? Mapping dynamic conversation networks on Twitter using Gawk and Gelphi. *Information, Communication & Society*. (December), 37-41

CIPD, 2013. *Social media and employee voice: the current landscape*.

Available at:

[http://www.cipd.co.uk/binaries/6133%20SOP%20Social%20Media%20\(WEB\).pdf](http://www.cipd.co.uk/binaries/6133%20SOP%20Social%20Media%20(WEB).pdf) Last accessed 23 July 2013

Dennen, V. (2008). Looking for evidence of learning: Assessment and analysis methods for online discourse. *Computers in Human Behavior*, 24(2), 205-219.

Eysenbach, G. and Till, G.E. (2001). Ethical issues in qualitative research on internet communities. *British Medical Journal*. November 10. 323(7321), 1103–1105.

Fairclough, N. (2003). *Analysing Discourse: textual analysis for social research*. London: Routledge

Fenwick, T. and Edwards, R. (2010). *Actor-Network Theory in Education*. London: Routledge

Fenwick, T., Jensen, K. and Nerland, M, (2012). Sociomaterial approaches to reconceptualising professional learning and practice. *Journal of Education and Work* 25 (1), 1-13.

Fox, S. (2005). An actor network critique of community in higher education: implications for network learning. *Studies in Higher Education*, 30 (1), 95 - 110

Francis, H. (2007). Discursive struggle and the ambiguous world of HRD. *Advances in Developing Human Resources*. 9(1), 83 – 96

Fuller, A. and Unwin, L. (2004). Expansive Learning Environments: integrating personal and organisational development, in H Rainbird, A Fuller and A Munro (Eds.). *Workplace Learning in Context*, London, Routledge

Geiger, D. (2009). Revisiting the Concept of Practice: Towards an Argumentative Understanding of Practicing. *Management Learning*, 40/2, 129-144

Gherardi, S. (2000). Practice-based theorising on learning and knowing in organizations. *Organization*, 7/2, 211-223

Gnosis Media Group (n.d) TweetChat wiki. Available at:  
[http://www.gnosisarts.com/home/Tweetchat\\_Wiki/By\\_Subject](http://www.gnosisarts.com/home/Tweetchat_Wiki/By_Subject)  
Last accessed: 15 February 2013

Gold, J., Holden, R., Iles, P., Stewart, J. and Beardwell, J. (2010). *Human Resource Development: theory and practice*. London: Palgrave MacMillan

Guzman, G. (2009). What is practical knowledge? *Journal of Knowledge Management*. 13/4, 86-98

Heracleous, L. (2006) A Tale of Three Discourses: The Dominant, The Strategic and The Marginalised. *Journal of Management Studies*. 43(5), 1059-1087.

Irwin, B. and Hramiak, A. (2010). A discourse analysis of trainee identity in online discussion forums. *Technology, Pedagogy and Education*. 19 (3). 361 - 377

Koole, M. (2010) *The Web of Identity: selfhood and belonging in online learning environments*, in L. Dirckinck-Holfield, V. Hodgson, C. Jones, M. de Laat, D. McConnel and T. Ryberg (Eds) *Proceedings of the 7<sup>th</sup> International Conference on Network Learning*.

Latour, B. (2005). *Reassembling the Social*. Oxford: Oxford University Press

Lawless, A., Sambrook, S., Garavan, T. & Valentin, C. (2011). A discourse approach to theorising HRD: opening a discursive space. *Journal of European Industrial Training*. 35(3), 264 – 275

Lerman, K. and Ghosh, R. (2010). Information Contagion: an Empirical Study of the Spread of News on Digg and Twitter Social Networks. *Proceedings of 4<sup>th</sup> International Conference on Weblogs and Social Media (ICWSM-10)*. Available at: <http://arxiv.org/abs/1003.2664>  
Last accessed: 15 January 2013

Mäkitalo, A. (2012). Professional learning and the materialities of social practice. *Journal of Education and Work*. 25(1), 59 - 78

McLean, C. and Hassard, J. (2004). Symmetrical Absence/Symmetrical Absurdity: Critical Notes on the Production of Actor-Network Accounts\*. *Journal of Management Studies*. 41:3, 493 - 519

McCulloch, J., McIntosh, E. and Barrett, T. (2011). *Tweeting for Teachers: how can social media support teacher professional development?* Pearson Centre for Policy and Learning

Miettinen, R. (1997) *The Concept of Activity in the Analysis of Heterogeneous Networks in Innovation Processes*. CSST Workshop: Actor Network Theory and After, July.

Mitev, N. (2009). In and Out of Actor-Network theory: a necessary but insufficient journey. *Information Technology & People*. 22 (1), 9 -25

Nicolini, D., Gherardi, S. & Yanow, D. (2003). Introduction: towards a practice-based view of knowing and learning in organizations. in D. Nicolini, S. Gherardi & D. Yanow (eds) *Knowing in Organizations: A Practice-Based Approach*. London: M.E. Sharpe

Nunan, D. (1993). *Introducing Discourse Analysis*. London: Penguin

O'Carroll, L. (2012). Twitter active users pass 200 million. *The Guardian*, 18 December. Available at: <http://www.guardian.co.uk/technology/2012/dec/18/twitter-users-pass-200-million>  
Last accessed: 10 February 2013.

Pata, K. (2009) *Revising the framework of knowledge ecologies: how activity patterns define learning spaces?* in N. Lambropoulos & M. Romero (Eds.) *Educational Social Software for Context-Aware Learning: Collaborative Methods & Human Interaction*. Information Science Reference. Hershey. New York, 241-267

Schneider, S.M. and Foot, K.A. (2005). Web Sphere Analysis: an approach to studying online action. In C. Hine (ed). *Virtual Methods: issues in social research on the internet*. Oxford: Berg

Simpson, J. (2005). Conversational floors in synchronous text-based CMC discourse. *Discourse Studies*. 7 (3), 337 – 361

Sorensen, E. (2009). *The Materiality of Learning: Technology and Knowledge in Educational Practice*. New York: Cambridge University Press.

Tuomi, I. (2000). *Internet, Innovation and Open Source: Actors in the Network*. SITRA, Finnish National Fund for Research and Development. November 3

Vicker, D. and Fox, S. (2010) Towards practice-based studies of HRM: an actor-network and communities of practice informed approach. *International Journal of Human Resource Management*. 21 (6), 899 – 914

## **Biography**

Peter Evans is a Senior Teaching Fellow at the University of Edinburgh and is the Programme Director of the MSc in the Management of Training and Development and also teaches on the MSc in Digital Education. Before joining the University of Edinburgh in 2008, he worked in various roles in organisational and human resource development in the public, private and not-for-profit sectors.





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### Exploring the relationship between discourse and a practice perspective on HRD in a virtual environment

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## Exploring the relationship between discourse and a practice perspective on HRD in a virtual environment

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This article presents an exploration of how human resource development (HRD) practices are ‘talked in to being’ in discussion events held in an open online environment. The discursive strategies of actors in such open virtual spaces are examined as a means to analyse how HRD practitioners collectively discuss and define what they do. Reflecting much of the research literature, this exploration found that a common definition of HRD remains elusive and that HRD as a practical concept is fluid and expansive. The analysis of the specific discussion events found that the discourses of practitioners have moved away from the common binary structuring between the US and European ‘Schools’ of HRD. The findings presented here suggest that HRD practices are elastic, contested and unstable and that the discursive strategies of practitioners seek to negotiate points of consensus and stability drawing on components of both the Schools. Furthermore, the discussion event clearly positions HRD practice as being in a largely self-created crisis that emphasizes a failure to meet the expectations of management or to respond to changes in the ‘business’ environment.

**Keywords:** discourse analysis; identity; online discussion; Twitter

### Introduction

This article explores how human resource development (HRD) practices are negotiated and assembled in particular networks of practitioners engaged in discursive interactions (Fenwick 2010) in open online environments: in this case, Twitter. The discursive strategies of such practitioners in open virtual spaces are examined as a means to analyse how HRD practitioners collectively discuss and define what they do. Given the difficulties associated with defining the theoretical foundations and practices of HRD (Lee 2001; McGoldrick, Stewart, and Watson 2001; Walton 2003; Stewart and Sambrook 2012), this article focuses on how these practitioners formulate and frame HRD in terms of both their own individual practices and as a collective endeavour. The findings presented here suggest that HRD practices are elastic, contested and unstable, and this reflects the discursive practices of practitioners who seek to negotiate points of consensus and stability in talking their profession ‘in to being’. The study explores how competing projections of practice emerge and are ‘processed’ in ways that construct community coherence through collaborative meaning-making actions.

### HRD: a practice and discursive perspective

It is widely recognized that defining the domain of HRD is problematic (Lee 2001; Gold et al. 2010; McGuire 2011). As Gold et al. (2010) summarize, the label ‘human resource

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Table 1. Schools of HRD theory.

US school	European school
Developmental focus	Strategic focus
Managerialist bottom-line approach	Interpretative holistic approach
Emphasis on learning processes	Emphasis on skills acquisition
Organizational orientation	Individual orientation
Structured learning methodology	Philosophy for investing in people
Utilitarian outlook	Humanist outlook
Directly managed	Indirectly managed
Outcome focused	Process focused
Unitarist perspective	Pluralist perspective
Formal/instructional	Informal/formal
Cognitive view of learning	Constructivistic view of learning

Source: McGuire et al. (2001, 7).

development' is principally an academic one referring to a domain of enquiry that is itself ill-defined. Stewart and Sambrook (2012) discuss HRD as a constantly expanding domain of practice, and arguably, this expansion generates such a breadth of definition as to render the term itself meaningless (Lee 2001, 2010).

In their analysis of the definitions of HRD, McGuire et al. (2001, 7) summarize the two broad 'schools' of HRD theory: a unitarist and utilitarian US School and a more pluralist European School (Table 1). This binary approach to the analysis of HRD is used here as a pragmatic mechanism for the structuring of discussions on the theories and practices of HRD.

The unitarist approach of the US School (Garavan, Gunnigle, and Morley 2000) emerges from a broadly economic discourse and can be summarized as focused on outcomes in terms of performance improvement in an organization (Corley and Eades 2006). The European School is arguably more concerned with humanistic and emancipatory notions of learning (Trehan and Rigg 2011).

However, as McGoldrick, Stewart, and Watson (2001, 347) discuss, HRD is historically defined by practice rather than specific theoretical concepts. This perspective reflects that of Dirx's statement that 'At the heart of the field of HRD ... is professional practice' (2008, 264) and that HRD research should be grounded in the 'narrative of practice' (2008, 266). From this standpoint, HRD as a domain of both practice and enquiry is founded on pragmatism: an epistemology of action (Cook and Brown 2005) where knowledge of the HRD domain is concerned with knowing 'how' rather than 'knowing that' (Kivinen and Ristela 2003; Spender 2005), thus aligning with the theoretical area of practice (Bourdieu 1977; Antonacopoulou 2006). The focus of this article, however, is not on practices as the microanalysis of individual and group activities (Balogun, Huff, and Johnson 2003; Johnson, Melin, and Whittington 2003). Rather, the concern here is with epistemic-normative practices (Gherardi 2000) that involve complex interactions between people, artefacts, language, collaboration and control (Nicolini, Gherardi, and Yanow 2003; Guzman 2009) that enable the construction of knowledge, knowing and identity.

This grounding in practice can be said to underpin the disputed nature of HRD theory (Lee 2001; McLean and McLean 2001) as practices have evolved to 'draw in' an ever increasing range of concepts including lifelong learning, the psychological contract, employee engagement, etc. as well as reflecting changes in work contexts such as the expansion of the contract workforce (Lee 2001; McGoldrick, Stewart, and Watson 2001;

Callahan and de Davila 2004; Garavan et al. 2007). Thus, McGoldrick, Stewart, and Watson (2001, 350) argue for defining HRD in terms of a hologram metaphor that:

enables the reconciliation of intrinsic confusions and the contradictions of conceptual, theoretical and empirical identities of HRD.

The role of the hologram metaphor is central in presenting the different theories, concepts and practices of HRD in all their contradictions and tensions while simultaneously allowing the 'looker' to see what they are looking for but also having the potential to 'see the other side' of the phenomenon (McGoldrick, Stewart, and Watson 2001, 351). Hence, the hologram metaphor simultaneously presents HRD as being restrictive, by reflecting back what the viewer is seeking to see, and expansive, by providing opportunities for the viewer to perceive new ways of seeing HRD.

The hologram metaphor suggest how HRD as a concept and practice holds together despite the tensions between, for example, an organizational 'performance' focus and a concern with individual learning (Garavan, Gunnigle, and Morley 2000) valued for 'developmental' or emancipatory outcomes (Trehan and Rigg 2011). Others suggest that HRD can be understood as a bridging concept underpinning relations between the individual and the organization in a wider context of rapid organizational and societal change (Lee 2010; Jorgensen and Henriksen 2011).

The hologram metaphor is also mirrored in the 'linguistic turn' in HRD research (Francis 2007). Expanding on this 'linguistic turn' and drawing on Gergen (1995), Lawless et al. (2011) suggest that the practice of HRD is constituted by discourse between actors who construct inter-subjective meanings from that practice. The discourses of HRD are not independent descriptions of what constitutes practice but rather compete with one another, so that the practices of HRD are unstable and highly contingent on the specific situation within which the practice is taking place. In turn, the discourses of HRD are materialized in HRD planning documents, learning management systems, performance management systems, learning materials, spaces of practice and workplace routines and common operating procedures.

Hence the professional knowledge of the HRD practitioner cannot be conceived in terms of a stable and external 'body of knowledge', a widely agreed set of resources and practices to be applied to a problem situation, but is inherently changeable, fluid, contested and contingent (Fenwick, Jensen, and Nerland 2012). What Keenoy (1999, 3) found in respect of human resource management can be applied to HRD as a domain that:

does not even encompass a set of coherent managerial practices; it is merely a map of what has turned out to be an ever-expanding territory.

But the idea of a stable body of professional knowledge is not easy to abandon given expectations from both practitioners and the wider public of some form of common knowledge resources. Professional practice is often understood in terms of the reproduction of a body of common knowledge (Mäkitalo 2012). Hence HRD, as with other areas of 'management' knowledge and practice, faces a tension between the expectation of generalizable and immutable practices and the realities of the contingent, fluid and flexible nature of actual practice (Gabriel 2002).

Lawless et al. (2011) found that through discursive and interactional practices, HRD actors seek to establish regulatory regimes of experts, practitioners and academics. Such regimes work towards establishing meaning-making networks that enable the

interpretation of activities through common discursive repertoires, ways of talking about professional practice. As Trehan and Rigg (2011) argue that an organization can be perceived as a 'network of shared meaning' constituted through social interactions, a profession can be understood as being constituted around a shared language.

### Discourse analysis and professional discourses

Discourse analysis is concerned with the study of 'language in use' (Nunan 1993, 7) operating at a number of levels (Phillips and Hardy 2002; Fairclough 2003; Alvesson and Skoldberg 2009). Given the purpose of this study in exploring how HRD practitioners collectively discuss and define what they do, an interpretive structuralist (Phillips and Hardy 2002) approach to discourse analysis was adopted. Taking a social constructionist perspective, interpretive structuralism is concerned with how social discourses within a specific context emerge as sense-making and legitimization strategies around particular practices (Phillips and Hardy 2002, 25). This approach to discourse analysis is concerned with the construction of discourses that move beyond the re-description of day-to-day practices (Geiger 2009).

Heracleous (2006) identifies two overlapping levels of discourse: communicative actions based on interactions between individuals to, for example, share experiences or build relations and deeper discursive structures that 'guide' and regulate those communicative actions. While Mäkitalo (2012) argues that professional discursive practices are indivisible from professional practices themselves, Fenwick, Jensen, and Nerland (2012) suggest that discursive practices seek to stabilize as, what can be termed, discursive resources (Rigg 2005) or structures that constitute the legitimized discourses of professional practice. Professional learning and development is concerned with the re-production of those deeper discursive structures and the identification and exclusion of 'illegitimate' discourses.

Bragd et al. (2008) argue that a discursive community is constituted by common meanings that develop through discursive interactions. So discourse can be treated as a collective endeavour created through interactions within an identifiable group of actors and texts rather than as the isolated acts of individuals (Dennen 2008). Thus, discourse is a mechanism that generates a 'feeling' of being part of a community through contributing to a particular discourse with particular uses and particular terms that are commonly understood as discursive resources (Rigg 2005), structures (Heracleous 2006) or repertoires (Eriksson and Kovalainen 2008). So a community is generated around some level of discursive structure that decentres the individual person to focus on networks of activity and influence (Fenwick, Jensen, and Nerland 2012). Furthermore, discursive communities not only reinforce common repertoires among members but also identify discourses that differentiate members from 'others' outside the community (Bragd et al. 2008). Hence discursive communities emerge through both collective meaning-making and processes of marginalization and exclusion that delegitimize 'other' discursive practices.

Discursive communities can then be seen as central to Mäkitalo's (2012) processes of identifying what constitutes legitimate professional knowledge resources such as repertoires of specific vocabularies and dominant metaphors (Francis 2007). Rigg (2005) discusses how collective meanings within discourses becoming institutionalized as a common language and meaning-making enterprise within an organization. Such processes of institutionalization could also occur through networks of interaction permeating organizational boundaries (Jorgensen and Henriksen 2011) including, for example, professional communities (Wenger 1998). Hence, a professional 'field', in Bourdieu's sense of

the term, can be negotiated, refined and revised through ongoing social interaction and made identifiable by common discursive repertoires (Czarniawska 1997, 180).

Therefore, this research is concerned with how, in the context of an unstable and contested professional domain, a group of HRD practitioners engage in discursive practices and negotiate and renegotiate the discursive structures, repertoires or resources that constitute 'HRD practice'.

### The research site

According to the website, The Chat Diary (<http://www.thechatdiary.com/>), as of October 2013, there were in excess of 750 Twitter chat events covering a range of professional, health, recreational and specific community subjects. The professional-orientated discussion events include almost all professional domains from financial and businesses analysts to brand management, communications, marketing and so forth often with a particular niche focus such as industry sector, location or practice (e.g., HR and social media). From the breadth of chat events listed, two chat event communities were selected from a list of eight learning-focused communities. The selection criteria were that:

- (1) the professional domain of the event was familiar to the researcher to avoid misunderstandings from, for example, the use of highly technical language;
- (2) the event was not limited to current or previous staff of a specific organization;
- (3) the event continues to take place on a regular basis and with a minimum of 20 participants per event and
- (4) there was some evidence of the event being embedded in a wider web sphere as indicated by links into or out of the discursive events such that a 'hypermedia discourse' (Shum 2007) could be identified.

From the first community selected, two of the events were chosen randomly from archives collected from the community website for a 3-month period in 2011. These events addressed the themes of the use of metrics in HRD provision and the nature and experiences of networks and collaboration for HRD practices. The initial analysis of these Twitter events identified the key themes for this study of the discursive practices of identity construction and the development of discourse communities in virtual environments.

As a result of the findings from the two events, the main discussion event analysed and presented here was purposively sampled from the second discussion community as the topic of the discussion event was seen to potentially provide a rich source of data on professional identity construction and community formation. The second community selected describes itself as:

for people interested in the topic of Learning ... [using] Twitter to... explore and discuss how the social and business environment ... impacts learning...

The Twitter chat events of this community occur fortnightly on a synchronous basis. The events are organized by nine individuals who are learning and development practitioners working in larger corporations as well as independent consultants based in the United Kingdom and North America.

The main chat event (hereafter termed 'New Skills') took place in 2012 and was focused on the Learning and Performance Institute (LPI) capability framework. A number of the participants in the event contributed to the development of the framework or work

for the LPI. This may underpin the positive presentation of the framework during the event and the lack of discussion of alternative frameworks.

The 'New Skills' event had 68 participants ( $N = 68$ ) predominately from North America, the United Kingdom and South Africa. The official event period of 1 hour saw 518 Tweets using the appropriate hashtag posted giving a mean average of 8.6 Tweets per minute (which was similar to the two earlier events with  $N = 54$  and  $N = 72$  and mean averages of 10.2 Tweets per minute and 8.6 Tweets per minute, respectively).

It should be noted that the data boundaries of these online events cannot be clearly prescribed. Schneider and Foot (2005, 158) use the term web sphere to denote:

not simply a collection of web sites, but as a set of dynamically defined digital resources spanning multiple websites deemed relevant or related to a central event, concept or theme.

So the research 'site' is itself a network of discursive practices, text items and images that constitute knowledge production, exchange and reflection (Mäkitalo 2012).

The 'New Skills' event was preceded by a brief discussion paper posted on the chat event website 2 days before the synchronous chat event itself. This paper summarized an online presentation from a leading HRD practitioner (Shepherd 2012), a short blog post (Couzins 2012) as well as a practitioner-focused journal article (Robert-Edomi 2012).

Further contributions to the web sphere of the event include the posting to the event website of the transcript following the specific chat event. Participants also add the URLs to their personal and/or professional or employer's websites as part of their introduction to the event. These URLs can often also be found in the participants' own Twitter profiles.

Participants in the event will also refer to other resources during the event by Tweeting URLs in the context of, for example, expanding on the topic of discussion beyond the 140-character limit of Twitter.

Some participants will post further reflections on the events in their own personal and/or professional websites and blogs. These reflections can often involve a form of retrospective coherence-making as part of that individual's personal professional development:

When reflecting on what I learned [during the event], I ... [review] the questions that were asked...

As well as including the re-presentation of participants' own texts:

a number of people have picked up on some of my tweets, and the context in which they were made ... here are the questions and my ... tweets.

It is worth noting here that the 'people' referred to were probably not participants in the Twitter event itself but were Twitter 'followers' of the specific participant quoted. These people would then have been able to see the event Tweets from that participant but possibly not viewed the event as a discrete entity. This in turn raises the issue of the meaning of being an 'event participant'. For example, in a number of instances, Tweets appeared to respond to discussions conducted over 30 minutes earlier in the chat event from individuals who had not made any previous contributions. These indicated that the 'participant' was probably not following the event hashtag but rather following one of the other event participants and so was enrolled in to the New Skills chat event unconsciously. Yet such Tweets contributed to, and participated in, the event and so have been included in the analysis presented here.



Finally, other participants wrote blog posts to clarify or alter views expressed during the chat event:

During the chat, I shared [a] tweet ... [now], I'm not sure [it is correct], because [it indicates] we're altering the course ... [but] in many ways we just keep going in the same direction, often oblivious to potential changes in the road.

Thus, such Twitter events can be seen to have permeable boundaries where the web sphere of interest of the event is itself contestable and dynamic as participants engage in the re-presentation of the content and their inputs as well as reflecting on and altering previously expressed opinions.

### Data analysis

The data were collected from transcripts available from the event website and analysed in two phases. The first phase of analysis was designed to provide a sense of the structure of the Twitter events by identifying the common building blocks of the discussion. This involved applying the functional categories identified by Belnap and Withers (2008) in analysing unstructured face-to-face learning events to the Twitter event transcripts. The categories of particular interest as the building blocks of exchanges include propositional statements and suggestions by participants. These could be linked together through statements that modify, clarify and assess the validity of preceding statements. It was notable that few explicit disagreements in the discussions were evident. Also of interest were restatements, given as Retweets (RTs) that can play an important function in Twitter discussions. RT refers to the practice of 'forwarding' the message of another and is a common practice on Twitter in general. Boyd, Golder, and Lotan (2010) identify a range of reasons for the use of RTs that appear pertinent to the analysis here including spreading a tweet to others, indicating support or homage, validating the comments of others, gaining prominence from more visible participants, repairing or reinitiating a sequence that had stalled and finally to maintain a collective focus on the formal topic.

This analysis of the events identified an apparent exaggeration of many of the key problematic features of unstructured discussions identified by Belnap and Withers (2008, 8): sequences extending over many exchanges, overlapping exchanges and sequences, short sequences tending to be cut off prior to a conclusion and sequences re-emerging later in discussions. However, this first phase of analysis was important in 'making sense' of the discussion event by identifying the sequences of exchanges.

Following the use of Belnap and Withers' (2008) functional categories to identify exchanges and sequences from the Twitter discussion, the more 'intense' exchange sequences that involved propositions that were linked and subject to assessment were then selected for further analysis. The content of these exchanges and sequences along with other content from the wider web sphere of blog posts, websites and multimedia resources were iteratively coded using an abductive approach (Wodak 2004) between the concepts explored in the review of literature and the empirical data using NVIVO. The visual components of the data were treated in the same way as the text data (Prosser 2008). The data were initially subject to open coding through an initial reading of the sequence transcripts seeking themes and 'reportoires' in the data (Potter and Wetherell 1987). This was followed by theoretical thematic analysis (Boyatzis 1998) guided by the main themes identified in the review of literature on individual and collective professional identity construction.

Given the findings of the phase 1 analysis of the discussion structure, the framing of HRD practices could not be identified through the development of a single discourse object or Tweet but rather as an accumulation of micropractices (Pachler and Daly 2009) as exchange sequences. Thus, a focus of analysis emerged on what Scardamalia and Bereiter (2008) termed 'ideational content', which refers to the linkages and patterns between utterances rather than specific text objects themselves.

The process of analysis was selected to explore and interpret the attempts to construct a collective definition and understanding of HRD practice. Given the highly interpretive nature of the discourse analysis, a particular emphasis was placed on the quality criteria of accessibility and intelligibility of the analysis (Titscher et al. 2000) tested through presentation of the emerging findings to academic and practitioner audiences (Alvesson and Skoldberg 2009, 315). These presentations were followed by further iterations of analysis of the data informed by feedback from the audiences.

### **Limitations**

The study presented in this article is a small-scale exploratory study focussed on a purposive sample of one main Twitter event. The small data sample may exacerbate some of the issues in the central role of the researcher in discourse analysis in terms of researcher-bias (Bryman 2008) which is a particular issue given the multiple possible readings of a discourse (Gill 1996) and the dangers of over emphasizing the significance of coherence and variations in the discourse (Alvesson and Skoldberg 2009). Using the theoretical thematic analysis approach made explicit the interests of the researcher rather than presenting the findings as 'emerging from' the data (Ely et al. 1997) while the presentations of earlier analysis of the data encouraged alternative possible interpretations to be identified.

Following this study, the researcher is currently collecting and analysing data from the two Twitter chat communities over a 4-month period. This will cover 24 discussion events and approximately 14,000 Tweets. This will provide opportunities to test the extent to which the patterns of discourse structures and identity discourses are replicated over time and between the two different communities.

### **Ethical considerations**

Researching Twitter chat events can pose a number of ethical issues that need to be addressed. These are captured in the AoIR policy, *Ethical Decision-Making and Internet Research* (AoIR 2012, 7) that states:

privacy is a concept that must include a consideration of expectations and consensus. Social, academic, or regulatory delineations of public and private as a clearly recognizable binary no longer holds in everyday practice.

The Twitter chat events are public events open to anyone with a Twitter account and awareness that the event is occurring. The archives of each event require no more than Internet access as these are kept on event websites and are again accessible to anyone. However, it can be argued that such communities rely on aspects of mutual trust and respect that may be undermined by a 'lurking' researcher (Eysenbach and Till 2001). So, the research presented here involved the use of publicly available chat archived transcripts that may be regarded as 'public domain' data (Androutsopoulos 2008). The research site

was treated as taking place in a public space, and individual explicit consent for participation was not sought, and so participants have been made as unidentifiable as possible (Eysenbach and Till 2001). In addition, the event organizers were contacted to inform them of the research and provide an opportunity to raise objections to the research (AoIR 2012).

Furthermore, participant names have been altered although their essential content, structure and capitalization has been retained including where a corporate or individual name has been used as well as the gender where indicated by that name. So, 'TrainingPete' is an anonymized Twitter name of a male participant who also demonstrated a clear professional label in that Twitter name. It does remain possible that an altered name is identical to a name of one of the over 200 million active Twitter users worldwide, but any such similarities are coincidental.

In addition, quotes from Tweets, but not from online articles, have been redacted, so that their authorship is less easily traced through search engines but the meaning of the statement is retained. However, it is acknowledged that some quotations may remain traceable.

### Framing HRD

To turn now to the analysis of the 'New Skills' chat event, we can start with the pre-discussion materials that set the context for the discussion topic itself. The pre-discussion post (Couzins 2012), the *Training Journal* article (Robert-Edomi 2012) and the online presentation (Shepherd 2012) collectively discuss HRD practitioners as facing an almost unprecedented set of challenges. These challenges arise from changing working practices, the increasing pace and scale of organizational change and ever-tighter financial pressures that results in 'our customers questioning the very basis of our [HRD] service offering' (Shepherd 2012).

The *Training Journal* article (Robert-Edomi 2012), quoted a Corporate Leadership Council report (un-referenced) that under 25% of respondents were satisfied with their company's training courses:

the same number felt that L&D had helped them achieve their business outcomes, and half of them would discourage colleagues from working with the L&D department.

The article goes on to quote a HRD consultant that:

We do this often long-winded training needs analysis, design and delivery process that takes time – we don't have that time. Learning is going on every minute of the day – all the time – and we have to accept that and work out how we can leverage it to the best effect

This pre-discussion material for the 'New Skills' chat event can be seen as mobilizing particular discursive structures to emphasize that current HRD practice is failing in terms of business relevance and in terms of responding to the pace of change. Such a discourse develops a nuanced approach to the HRD schools identified earlier. The promotion of an organizational and utilitarian focus on HRD practice is drawn from the US School. Yet, from that School, the discourses associated with the adoption of structured learning methodologies and a formal/instructional approach to HRD are positioned as being part of the current problems facing the profession.

At the same time, the strategic focus of the European School is promoted in the event discussion alongside a constructivist view of learning that is indirectly managed and pluralist:

We need to think about the way in which humans learn: from the rich experiences we have, opportunities to practise deep and meaningful conversations and opportunities to reflect.

However, the US School's economic discourse of performance is presented as dominating the discussion:

We're moving to a world that focuses on performance and experience. There is a productivity and performance focus, rather than just a learning focus,

The preamble blog post (Couzins 2012) for the New Skills chat event also reflects this dominance, stating:

Business agility and improved performance have become increasingly important. There is also recognition that an organization's learning strategy should to be aligned to business objectives with the focus moving from the L&D process to business outcomes.

This economic and performative discourse (Gold et al. 2010) is articulated in to a capability framework developed by the LPI and underpins the preamble blog post. The LPI describes itself as:

The Learning and Performance Institute is a global Institute for Learning & Development professionals. Established in 1995 the Institute has grown on an annual basis to become the leading authority on Learning & Development.

Its corporate brochure is titled 'Performance through Learning', suggesting that learning is subservient to, or only of value in, the context of performance.

The LPI Capability Map (or framework) (Learning & Performance Institute) consists of 27 skills across nine different categories including traditional HRD categories such as the live delivery of face-to-face learning interventions as well as newer skills areas supporting collaborative learning (Table 2).

Presented as a strength of the Capability Map is the statement that it has been developed by 'leading experts in the industry'. This is a similar claim to that made by the UK's Chartered Institute of Personnel and Development (Stewart and Sambrook 2012) and arguably reinforces Dirkx's (2008) idea of the 'narrative of practice'. However, the claims of the Capability Map (and other similar frameworks) also seemingly reject the notion of the hologram metaphor of HRD. According to the LPI map, HRD practice is not an unstable or disputed domain of complex competing perspectives and dynamics highly contingent on where and when it is being practiced. Rather, HRD practice can be simplified as a toolkit of instructions to be consumed and applied regardless of context (Gabriel 2002). Thus the 'narratives' of HRD practice are presented as clear, stable and unambiguous.

From this initial framing of the 'New Skills' chat event, the discursive resources of the US performance-based approach to HRD practice (Gold et al. 2010) appear initially to have been adopted by the chat event participants (Table 3).

Tweets 1–3 place the emphasis on a performative discourse in terms of changes in professional practice. In particular, Tweet 1 presents a change of emphasis rather than a fundamental change of the practitioner discourse. Tweets 2 and 3 appear to suggest a

Table 2. Learning and performance institute capability map.

Live delivering	Learning resources	Performance improvement
Presentation delivery	Design	Performance support
Face-to-face learning	Content creation	Coaching
Virtual/distance learning		Mentoring
Collaborative learning	Analysis and strategy	Learning information management and interpretation
Supporting work teams	Performance analysis	Information architecture
Supporting communities of practice (CoP)	Competency management	Data interpretation
Supporting content co-creation and curation	Assessment and evaluation	
Developing collaborative learning skills	Learning strategy	
Learning delivery management	Managing the learning function	Business skills and intelligence
Project management	People management and development	Financial management
Change management	Process management and improvement	Procurement
	Resource management	Communication, marketing and relationship management
		Industry awareness

Source: Adapted by the author from Learning and Performance Institute.

mobilization of the discourse repertoire of performance as the necessary means of addressing the challenges faced by practitioners. Furthermore, Tweet 4 can be seen as an attempt to position the discourse structure of performance as a legitimated professional knowledge and discursive resource (Mäkitalo 2012) with alternatives being dismissed as 'a waste of time'.

Yet, a more nuanced positioning between the US and European Schools could be seen to emerge in the discussion. One participant Tweeted the URL for a blog post of theirs during the event that made the argument that all that HRD functions should be concerned with is organizational performance. However, the competing concerns with individual development and skills acquisition were acknowledged as important aspects of HRD practice, but these, it was argued, should be the responsibility of the individual rather than the employer and HRD department. The blog post argued that individual portfolios of competence and learning are key to the future employability of workers and that through new technology some HRD practices could and should be re-situated outside the boundaries of the organization as the responsibility of the individual.

Table 3. Excerpt on the performance-based approach to HRD.

TrainingPete	less focus on 'training' and more focus on 'performance support'. #...
JoanMar2	Yes, ... We need to [show] measureable ROI and performance improvement #...
TrainingPete	First thing is a new mindset [and by asking what is] the least intrusive way to address [a] performance issue? #...
ILPT	# ... set performance ... objectives ... measure against those [do not] just track learning activity #wasteoftime

Source: 'New Skills' Twitter chat event.

Furthermore, the expansive and generative aspects of the hologram metaphor (McGoldrick, Stewart, and Watson 2001) appear to be accepted within the communicative actions of the chat event. The boundaries of HRD practice appeared to be perceived as flexible and interdisciplinary with participants citing the application of neuroscience, user-experience (UX) design and online community management as new areas in their practice.

The initial blog post introducing the 'New Skills' chat event also framed the discussion in terms of HRD practitioners being at a crossroads, with notions of a limited choice of directions. The crossroads metaphor is presented as a 'choice' for HRD practitioners to either collectively choose to respond effectively to these challenges or to risk 'becoming a deadweight'. The *Training Journal* (Robert-Edomi 2012) implies that the risk to HRD practitioners is in becoming an irrelevance to the organization, again reinforcing the notion that HRD should adopt the economic discourses of the organizational orientation, bottom-line contribution and outcome focused practices.

However, the event participants did not unquestioningly accept the metaphor of being at a crossroads or that this is currently a period of particular pressure for the profession. It was asserted that this situation is not new for HRD but rather the continuation of a longstanding issue that HRD practitioners were not addressing (Table 4).

On reflecting on Tweet 2 (Table 4) in a later blog post, the participant changed their position arguing that rather than choosing an incorrect direction of change, HRD practices were simply failing to change direction in response to changing organizational needs at all. So that the view expressed in Tweet 2 was later revised to align with that expressed in Tweet 1 that the practices of many HRD professional has not changed despite pressures to do so. This aligns with other assertions (Robert-Edomi 2012) that:

There was a need for speed and agility in today's organizations, and for L&D professionals to support them in being agile and responsive. But traditional approaches to learning were slow and unresponsive, making people wait for the information they needed rather than giving it to them when they really needed it.

To further emphasize the hopelessly out-of-date nature of these 'traditional' approaches to learning and development, one participant posted an image of a classroom from 1910. The image presented was one of passive learning with the pupils' facial features blurred in a way that seemed to emphasize the impersonal and anti-individual nature of systematic learning design methods. The image was used to support the critical emerging discursive repertoires on off-the-job formal and instructional training.

This is one single example of the 'need for change' discourse that was widely adopted by the participants and often framed in terms of the opportunities, both personal and organizational, that such change may bring. This was expressed in terms of the opportunities associated with choosing the 'right' turn as in Table 5 or with the range and diversity of opportunities for development in and of the profession:

Not so much a crossroads, more of a spaghetti junction.... So much opportunity to change.

Table 4. Excerpt on the crossroads metaphor.

1. KgeeVeeranki	L&D has been at a crossroads for over a decade ... most ... ignored it #...
2. TrainingPete	We've been at crossroads numerous times, we just keep making the wrong turn #...

Source: 'New Skills' Twitter chat event.

Table 5. Excerpt on current practices in HRD.

1. RobThomson007	This is why we need to move on and develop new skills ... <a href="http://t.co/pJY2nAs1">http://t.co/pJY2nAs1</a> #...
2. jpmelaw	RT @RobThomson007: This is why we need to move on and develop new skills ... <a href="http://t.co/XcJnnbKg">http://t.co/XcJnnbKg</a> < Haha! Indeed! #...
3. jpmelaw	@RobThomson007 Did you come with that image ready ... or are you just a v. proficient Googler? #...
4. sharonbrown	@jpmelaw @RobThomson007 TOO funny! #...
5. RobThomson007	@jpmelaw a key skill is to find things at point of need and know where to look #...
6. johnlearn	@s_armet @RobThomson007 Sounds like a good thing to change. Ditch the 'class room', perhaps. #...
7. RobThomson007	@s_armet @johnlearn yep why do you need to be 'in' the classroom what can't be achieved using other techniques? #...

Source: 'New Skills' Twitter chat event.

The spaghetti metaphor mirrors the diversity and holographic nature of the HRD domain noted in the academic literature (McGoldrick, Stewart, and Watson 2001). So we see the discourse shift away from a simplistic and linear notion of change in direction implied in the crossroads metaphor to more complex notions of experimentation and of a learning process in untangling the spaghetti of possibilities:

taking wrong turns is part of finding your way.... Mistakes are all part of the learning process.

So the central metaphor of the 'New Skills' chat event of HRD being at a crossroads is destabilized through the course of the discussion. Yet, the discourses of change are clearly stabilized and reproduced as discursive repertoires of the professional community. The following sequence goes further in emphasizing the 'naturalness' of change by asserting that HRD functions (L&D Departments) are no different from any other function: change is an organizational norm (Table 6).

Throughout the 'New Skills' event was a sense of HRD practitioners failing to keep pace with the learning practices of employees: that HRD professionals were failing to change their practices to meet the changing behaviours of employees in organizations in respect of learning and development. This concern was also reflected in one of the other Twitter chat events where it was stated that 'traditional' HRD provision of learning and employee development was not important to businesses while 'positive performance change' was seen as important. So a discursive structure of being in deficit to, or lagging behind, others can be identified in the discourses of HRD practice.

Table 6. Excerpt on change as an organizational norm.

edwardmcnally	It's not just L&D though, most functions are having to re-evaluate what they do and how they do it – marketing, IT etc #...
sorrelathomson	RT @edwardmcnally: ...Its not just L&D though, most functions are having to re-evaluate < agreed ...! #...
ClairRussell	The state of L&D is no diff to the state of all departments – greater scrutiny and justification of where everyone brings value #...

Source: 'New Skills' Twitter chat event.



### The pace of change

The institutionalized discourse of constant change was also combined with an emphasis on a specific discourse on the pace of change initiated in the ‘New Skills’ chat event pre-discussion texts including the *Training Journal* article (Robert-Edomi 2012) and the expert presentation (Shepherd 2012). Both these ‘texts’ used images emphasizing technology and speed of movement. The *Training Journal* (Robert-Edomi 2012) used images to convey a sense of both the speed of technology-led change along with a sense of such change being inevitable and unstoppable, impervious to human agency. Similarly, the expert presentation (Shepherd 2012) uses a combination of natural images of the sky and trees alongside ‘high tech’ images of jet planes and chrome that emphasizes change and technology as natural components of working contexts.

HRD practice is presented as subservient to a new-capitalist discourse that emphasizes adaptability, innovation and speed (Gee, Hull, and Lankshear 1996). For HRD to realize its potential impact on organizations, the discourse within the Twitter event clearly perceives speed as a positive or, at least, ‘natural’ phenomenon to be embraced uncritically. Hence speed is attributed positive cultural value (Tomlinson 2007). Yet speed is also something to fear: many HRD practices are discursively constituted as failing to change at the pace they should.

In Table 7 we see two discourses presented on HRD practices being in deficit to ‘business’. Tweets 1 and 3 promote the idea of HRD as being historically slow to react to emerging ‘business need’. However, Tweet 2 constitutes this as not an issue of speed but rather of trajectory where HRD has a tendency to fail to align to ‘business needs’ and therefore, by implication, was not perceived to be providing value to the business.

The intertwining of these discourses of technology, speed, trajectory and performativity can be seen as mutually reinforcing (Luke 1997). Throughout the Twitter chat event, the discourse of speed and the pace of change were legitimized as a discursive resource of the community and perceived as central to effective HRD practices. Any tension between the focus on speed and the need for temporal space, a pause, for the sorts of reflection (Jackson and McDowell 2000) suggested as necessary for the professional practitioner to select the ‘correct way’ at the crossroads was not raised or discussed.

So the ‘New Skills’ chat event places HRD practices as being in deficit to a scale, scope and pace of change that has been more readily adapted to and adopted by other professions and the wider ‘business’.

### Community formation

It can be argued that in the discourses of a performance-focussed HRD, the perceived need for constant organizational change at speed and of a professional practice failing to ‘keep pace’ with such changes are seen as providing stable discursive resources (Rigg and

Table 7. Excerpt on the speed of business.

TrainingPete	There [is] a growing [awareness] that traditional L&D approaches do not move at the speed of business. #...
KgeeVeeranki	it's not that we don't move at the speed of biz, it's that we tend to avoid/ignore business issues (at our peril) #...
johnlearn	Yes indeed! RT @TrainingPete: ... There [is] a growing [awareness] that traditional L&D approaches do not move at the speed of business. #...

Source: ‘New Skills’ Twitter chat event.



Trehan 2002) that assemble a discourse community. The discursive resources provide a thematic coherence, or repertoires, to the event community (Bloome et al. 2005). Alongside these resources of coherence-making it is also helpful to examine how differences are treated within the emergent discussion community. Fairclough (2003, 41–42) identified five approaches to the treatment of differences in discourse:

- (a) an openness to, acceptance of, recognition of difference; an exploration of difference, as in ‘dialogue in the richest sense of the term’; (b) an accentuation of difference, conflict, polemic; a struggle over meaning, norms, power; (c) an attempt to resolve or overcome difference; (d) a bracketing of difference, a focus on commonality, solidarity; (e) consensus; a normalisation and acceptance of differences of power which brackets or suppresses differences of meaning and norms.

While intense discursive struggles (Bragd et al. 2008) did not occur in the ‘New Skills’ chat event, examples of the exclusion of alternative translations could be seen to occur (Table 8).

In this excerpt that is a sequence in response to the moderator’s question on recent changes in practice, there is a note of surprise expressed in Tweet 2 that a shift to practices of performance support is viewed as recent. That viewpoint falls outside the dominant discourse of the event and is then, to an extent, withdrawn (Tweet 3). This withdrawal is then reinforced in Tweet 4 with the implication that a ‘qualified’ professional should have understood this reality sooner, and this reinforcement is accepted in Tweet 5 and the sequence closed.

Other areas of discussion led to more explicit negotiation of discourse repertoires. The following sequence follows a discussion on the role of learning in developing the skills, capabilities and competences of HRD practitioners in responding to change (Table 9).

Tweet 1 gives a clear statement on the value of mistakes as part of the learning process. This is a view that assembles support in Tweets 2 and 3, albeit with Tweet 3 emphasizing the need for actual learning to be derived from those mistakes if they are to be of value. However, Tweet 5 rejects enrolment to that particular stance but rather positions it as a component of the discursive practices that undermine wider perceptions of the value of HRD within organizations. Yet, rather than stimulate further debate, the discussion moves on and no attempt is made at negotiating a common discursive stance to locate ‘learning from mistakes’ as a discursive resource of the community.

Discursive repertoires were assembled over the course of the event that sought to self-identity the discourse community as distinct from particular ‘others’ and to accentuate and also bracket away difference. So, the discursive actions in the ‘New Skills’ event refer to the expectations and demands of managers as holding back the development of effective and ‘modern’ HRD practice. Sequences refer to the key constraint faced by HRD practitioners as being the current ‘thought processes’ within the organizations. These

Table 8. Excerpt on changes in practice.

1. sharonbrown	Less focus on training and more focus on performance support. #...
2. johnlearn	@sharonbrown You consider that a more recent personal evolution? # ... I admit I’m surprised.
3. sharonbrown	@marklearns No, but it is speeding up. You? #...
4. johnlearn	@sharonbrown I suppose there’s a tacit acknowledgement, but I figured your Educational credentials would have cemented it sooner #...
5. sharonbrown	@johnlearn: Nah. #...

Source: ‘New Skills’ Twitter chat event.

Table 9. Excerpt on learning from mistakes.

edwardmcnally	taking wrong turns is part of finding your way though. Mistakes are all part of the learning process #...
abarr5	RT @edwardmcnally: ...taking wrong turns is part of finding your way though. Mistakes are all part of the learning process #...
norahfraskou	MT @edwardmcnally: ... taking wrong turns is part of finding your way tho. Mistakes r part of lng process < if learn from them #...
s_armet	@edwardmcnally Completely agree, failure is a fantastic teacher ; ) #...
acp34	Continually learning from mistakes slows us down ... need to practice success to keep up [this could be the] cause of L&D problem? #...

Source: 'New Skills' Twitter chat event.

Table 10. Excerpt on organizational expectations of HRD.

1. KgeeVeeranki	'on-demand' learning solutions 'identify, learn, apply' in short time frames ... rinse, repeat
2. ILPT	@KgeeVeeranki Most orgs want a 'command and control' ... training model – as that is how it has [always been] done #...

Source: 'New Skills' Twitter chat event.

constraining thought processes get articulated into the inflexible and systematic learning design methods decried earlier (Table 10).

The demands of managers become articulated and materialized as the key metrics that HRD professionals work to. These include measures of completion rates or hours of training delivered rather than the outcome focused, economic, bottom-line and utilitarian measures anticipated in the performance-focused US School of HRD practice. This was summarized in the chat event as 'measurement without cause, order-taking without reason' that indicate HRD practices that are not of value, which, in effect, lack legitimacy as professional practices.

A more nuanced and complex discussion of the problems of HRD practice began to emerge in the discussion. So members of this discursive community were identified as understanding and wanting to change and needing to persuade their organization and other departments to modify their expectations. Yet there were implicitly 'other' HRD practitioners who were not able to move away from the formal and instructional practices of 'traditional' HRD through fear and ignorance. So the event HRD community identified itself simultaneously as being part of the traditional HRD community lagging behind 'the business' but also distinct from the community as they present themselves as demonstrating aspects of newer and progressive HRD practices.

## Conclusions

This article presents an investigation of the discursive practices of HRD practitioners in an open online environment and how such discursive practices emerge to scope and define HRD as a domain of practice. It is suggested that among practitioners there has been little change from the situation identified by Walton (1999) of HRD seeking to make sense of itself through a contested accumulation of diverse practices. Hence, the discourses identified in this article suggest that HRD practice remains elusive

(McGoldrick, Stewart, and Watson 2001). While initially using the categorization of the US or European Schools of HRD (McGuire et al. 2001), the analysis of this specific Twitter discussion forum indicated that the discourse of practitioners had moved away from this binary structuring. Performance outcomes associated with the US School were partially to be delivered through adopting practices more associated with the European School involving skills acquisition, constructivist and informal learning indicating indirectly managed HRD practices that are strategically and process focused.

Furthermore, alongside the dynamic nature of the negotiation of this binary structure, there could also be seen an emergent expansion of the concepts and theories ‘drawn in’ to the discourses of HRD practice. So the discursive practices examined here suggest that HRD practice is in an ‘interactive moment’ (Shotter 1993, 3) providing spaces of negotiation, translation and tensions. Such tensions (Antonacopoulou 2006, 5):

capture both the socio-political forces as well as the ‘elasticity’ and fluidity of organizing as different processes and practices connect to provide new possibilities.

HRD practice can be positioned in tension between the generative metaphor of the hologram (McGoldrick, Stewart, and Watson 2001) and a restrictive discourse of practice recipes to be implemented (Gabriel 2002). Thus, the discourse practices of the chat event encouraged a conceptual bricolage as HRD practitioners ‘bring in’ an ever-widening range of concepts, tools and approaches (Gabriel 2002) to HRD practice. But, discursive practices also involved a ‘co-ordinated management of meaning’ (Oswick and Robertson 2009, 186) in a programmatic (Gabriel 2002) framing of HRD practice presented through ‘capability maps’ and HRD ‘solutions’ that were phrased as ‘rinse and repeat’ approaches to practice routines.

This framing of HRD was also achieved through positioning HRD practice as being in a self-created crisis that it is failing to meet the expectations of management and failed to change in response to changes in the business environment. Yet, as the discourse developed, so the meaning of the crisis itself became re-presented in repertoires concerning barriers to the emergence of better HRD practices. Such barriers included ‘command and control’ management, specific performance measurement practices within organizations and, in particular, ‘other’ traditional HRD practitioners holding on to outmoded concepts and modes of delivery. Thus, the discursive practices presented in this specific event tended to constitute the participants as ‘performing the solutions’ to the problems and challenges faced by HRD practices as a whole that as a community, they specifically are engaged in finding the way for HRD practice to make sense of itself.

## References

- Alvesson, M., and K. Skoldberg. 2009. *Reflexive Methodology: New Vistas for Qualitative Research*. 2nd ed. London: Sage.
- Androutsopoulos, J. 2008. “Potentials and Limitations of Discourse-Centred Online Ethnology.” *Language@Internet* 5 (8). Accessed January 12, 2013. <http://www.languageatinternet.org/articles/2008/1610>
- Antonacopoulou, E. 2006. *Learning-in-Practise: The Social Complexity of Learning in Working Life*. Advanced Institute of Management Research Working Paper, February.
- AoIR. 2012. *Ethical Decision-Making and Internet Research 2.0: Recommendations from the AoIR Ethics Working Committee*. Chicago: AoIR. Accessed March 2, 2013. <http://www.aoir.org/reports/ethics2.pdf>
- Balogun, J., A. S. Huff, and P. Johnson. 2003. “Three Responses to the Methodological Challenges of Studying Strategising.” *Journal of Management Studies* 40 (1): 197–224.

- Belnap, J. K., and M. G. Withers. 2008. "Discourse Analysis: The Problematic Analysis of Unstructured/Unfacilitated Group Discussions." Paper presented at the Meeting of the Special Interest Group of the Mathematical Association of America on Research in Undergraduate Mathematics Education, Brigham Young University, San Diego, CA, February.
- Bloome, D. S. P., B. M. Carter, S. O. Christian, and N. Shuart-Faris. 2005. *Discourse Analysis and the Study of Classroom Language and Literacy Events*. Mahwah, NJ: Lawrence Erlbaum Associates.
- Bourdieu, P. 1977. *Outline of a Theory of Practice*. Cambridge: Cambridge University Press.
- Boyatzis, R. E. 1998. *Transforming Qualitative Information: Thematic Analysis and Code Development*. Thousand Oaks, CA: Sage.
- Boyd, D., S. Golder, and G. Lotan. 2010. "Tweet, Tweet, Retweet: Conversational Aspects of Retweeting on Twitter." Paper presented at the Hawaii International Conference on System Sciences – 43, IEEE, Kauai, HI, January 6.
- Bragd, A., D. Christensen, B. Czarniawska, and M. Tullberg. 2008. "Discourse as the Means of Community Creation." *Scandinavian Journal of Management* 24 (3): 199–208.
- Bryman, A. 2008. *Social Research Methods*. Oxford: Oxford University Press.
- Callahan, J. L., and T. D. de Davila. 2004. "An Impressionistic Framework for Theorizing About Human Resource Development." *Human Resource Development Review* 3 (1): 75–95.
- Cook, S. D. N., and J. S. Brown. 2005. "Bridging Epistemologies: The Generative Dance between Organizational Knowledge and Organizational Knowing." In *Managing Knowledge: An Essential Reader*, edited by S. Little and T. Ray, 51–83. London: Sage.
- Corley, A., and E. Eades. 2006. "Sustaining Critically Reflective Practitioners: Competing with the Dominant Discourse." *International Journal of Training and Development* 10 (1): 29–39.
- Couzens, M. 2012. "Strong Demand for LPI's Skills Capability Map." LearnPatch, November 1. <http://learnpatch.com/2012/11/strong-demand-for-lpis-skills-capability-map/>
- Czarniawska, B. 1997. *Narrating the Organization: Dramas of Institutional Identity*. Chicago: University of Chicago Press.
- Dennen, V. 2008. "Looking for Evidence of Learning: Assessment and Analysis Methods for Online Discourse." *Computers in Human Behaviour* 24 (2): 205–219.
- Dirkx, J. M. 2008. "Editorial. The Epistemology of Practice: An Argument for Practice-Based Research in HRD." *Human Resource Development Review* 7 (3): 263–269.
- Ely, M., R. Vinz, M. Downing, and M. Anzul. 1997. *On Writing Qualitative Research: Living by Words*. London: Routledge.
- Eriksson, P., and A. Kovalainen. 2008. *Qualitative Methods in Business Research*. London: Sage.
- Eysenbach, G., and J. E. Till. 2001. "Ethical Issues in Qualitative Research on Internet Communities." *British Medical Journal* 323 (7321): 1103–1105.
- Fairclough, N. 2003. *Analysing Discourse: Textual Analysis for Social Research*. London: Routledge.
- Fenwick, T. 2010. "Beyond Individual Acquisition. Theorising Practice-Based Collective Learning in HRD." In *Workplace Learning: Concepts, Measurement and Application*, edited by M. van Woerkom and R. Poell, 26–40. London: Routledge.
- Fenwick, T., K. Jensen, and M. Nerland. 2012. "Sociomaterial Approaches to Reconceptualising Professional Learning and Practice." *Journal of Education and Work* 25 (1): 1–13.
- Francis, H. 2007. "Discursive Struggle and the Ambiguous World of HRD." *Advances in Developing Human Resources* 9 (1): 83–96.
- Gabriel, Y. 2002. "Essai: On Paragrammatic Uses of Organizational Theory: A Provocation." *Organization Studies* 23 (1): 133–151.
- Garavan, T. N., P. Gunnigle, and M. Morley. 2000. "Contemporary HRD Research: A Triarchy of Theoretical Perspectives and Their Prescriptions for HRD." *Journal of European Industrial Training* 24 (2/3/4): 65–93.
- Garavan, T. N., D. O'Donnell, D. McGuire, and S. Watson. 2007. "Exploring Perspectives on Human Resource Development: An Introduction." *Advances in Developing Human Resources* 9 (3): 3–10.
- Gee, J. P., G. Hull, and C. Lankshear. 1996. *The New Work Order: Behind the Language of the New Capitalism*. St. Leonards: Allen & Unwin.
- Geiger, D. 2009. "Revisiting the Concept of Practice: Towards an Argumentative Understanding of Practicing." *Management Learning* 40 (2): 129–144.

- Gergen, K. J. 1995. "Relational Theory and the Discourses of Power." In *Management and Organization: Relational Alternatives to Individualism*, edited by D. M. Hosking, H. P. Dachler, and K. J. Gergen, 29–51. Aldershot: Avebury.
- Gherardi, S. 2000. "Practice-Based Theorising on Learning and Knowing in Organizations." *Organization* 7 (2): 211–223.
- Gill, R. 1996. "Discourse Analysis: Methodological Aspects." In *Handbook of Qualitative Research Methods for Psychology and the Social Sciences*, edited by J. E. Richardson, 141–156. Leicester: British Psychological Society.
- Gold, J., R. Holden, P. Iles, J. Stewart, and J. Beardwell. 2010. *Human Resource Development: Theory and Practice*. London: Palgrave MacMillan.
- Guzman, G. 2009. "What Is Practical Knowledge?" *Journal of Knowledge Management* 13 (4): 86–98.
- Heracleous, L. 2006. "A Tale of Three Discourses: The Dominant, the Strategic and the Marginalised." *Journal of Management Studies* 43 (5): 1059–1087.
- Jackson, M. H., and S. D. McDowell. 2000. "Enhancing Discourse on New Technology within Higher Education." *Information, Communication & Society* 3 (4): 629–638.
- Johnson, G., L. Melin, and R. Whittington. 2003. "Guest Editors' Introduction. Micro Strategy and Strategising: Towards an Activity-Based View." *Journal of Management Studies* 40 (1): 3–22.
- Jorgensen, K. M., and L. B. Henriksen. 2011. "Identity and HRD." In *Human Resource Development: Theory & Practice*, edited by D. McGuire and K. M. Jorgensen, 129–140. London: Sage.
- Keenoy, T. 1999. "HRM as Hologram: A Polemic." *Journal of Management Studies* 36 (1): 1–23.
- Kivinen, O., and P. Ristela. 2003. "From Constructivism to a Pragmatist Conception of Learning." *Oxford Review of Education* 29 (3): 363–375.
- Lawless, A., S. Sambrook, T. N. Garavan, and C. Valentin. 2011. "A Discourse Approach to Theorising HRD: Opening a Discursive Space." *Journal of European Industrial Training* 35 (3): 264–275.
- Learning and Performance Institute. *Capability Map*. Accessed February 27, 2013. <http://www.learningandperformanceinstitute.com/capabilitymap.htm>
- Lee, M. 2001. "A Refusal to Define HRD." *Human Resource Development International* 4 (3): 327–341.
- Lee, M. 2010. "Shifting Boundaries: The Role of HRD in a Changing World." *Advances in Developing Human Resources* 12 (5): 524–535.
- Luke, T. W. 1997. "Discourse and Discipline in the Digital Domain: The Political Economy of the Virtual University." Paper presented at the Virtual Technologies in Tertiary Education: A Vision for New Zealand Conference, Auckland, October 11–12.
- Mäkitalo, A. 2012. "Professional Learning and the Materialities of Social Practice." *Journal of Education and Work* 25 (1): 59–78.
- McGoldrick, J., J. Stewart, and S. Watson. 2001. "Theorizing Human Resource Development." *Human Resource Development International* 4 (3): 343–356.
- McGuire, D. 2011. "Foundations of Human Resource Development." In *Human Resource Development: Theory & Practice*, edited by D. McGuire and K. M. Jorgensen, 1–11. London: Sage.
- McGuire, D., D. O'Donnell, T. N. Garavan, and J. Murphy. 2001. "Framing Human Resource Development: An Exploration of Definitional Perspectives Using Discourse Analysis." Paper presented at the Irish Academy of Management Conference, University of Ulster, Northern Ireland, September 6–7.
- McLean, G. N., and L. McLean. 2001. "If We Can't Define HRD in One Country, How Can We Define It in an International Context?" *Human Resource Development International* 4 (3): 313–326.
- Nicolini, D., S. Gherardi, and D. Yanow. 2003. "Introduction: Towards a Practice-Based View of Knowing and Learning in Organizations." In *Knowing in Organizations: A Practice-Based Approach*, edited by D. Nicolini, S. Gherardi, and D. Yanow, 3–31. London: M.E. Sharpe.
- Nunan, D. 1993. *Introducing Discourse Analysis*. London: Penguin.
- Oswick, C., and M. Robertson. 2009. "Boundary Objects Reconsidered: From Bridges and Anchors to Barricades and Mazes." *Journal of Change Management* 9 (2): 179–193.
- Pachler, N., and C. Daly. 2009. "Narrative and Learning with Web 2.0 Technologies: Towards a Research Agenda." *Journal of Computer Assisted Learning* 25 (1): 6–18.

- Phillips, N., and C. Hardy. 2002. *Discourse Analysis: Investigating Processes of Social Construction. Qualitative Research Methods Series 50*. London: Sage.
- Potter, J., and M. Wetherell. 1987. *Discourse and Social Psychology: Beyond Attitudes and Behaviour*. London: Sage.
- Prosser, J. 2008. *Introducing Visual Methods*. ESRC National Centre for Research Methods, NCRM/010.
- Rigg, C. 2005. "It's in the Way They Talk – A Discourse Analysis of Managing in Two Small Businesses." *International Journal of Entrepreneurial Behaviour and Research* 11 (1): 58–75.
- Rigg, C., and K. Trehan. 2002. "'Do They or Don't They?': A Comparison of Traditional and Discourse Perspectives of HRD in SMEs." *Education and Training* 44 (89): 338–397.
- Robert-Edomi, S. 2012. "A Stark Warning to 'Adapt and Adopt' or Die Has Been Delivered to L&D Professionals." *Training Journal*. July 26. <http://www.trainingjournal.com/news/articles-news-adjust-or-become-deadweight-ld-professionals-warned/>
- Scardamalia, M., and C. Bereiter. 2008. "Pedagogical Biases in Educational Technologies." *Educational Technology* 48 (3): 3–11.
- Schneider, S. M., and K. A. Foot. 2005. "Websphere Analysis: An Approach to Studying Online Action." In *Virtual Methods: Issues in Social Research on the Internet*, edited by C. Hine, 157–170. Oxford: Berg.
- Shepherd, C. 2012. "Transforming Learning and Development," YouTube Video, 14:16, March 13. Accessed February 13, 2013. [http://www.youtube.com/watch?feature=player\\_embedded&v=zock4KPjWCQ](http://www.youtube.com/watch?feature=player_embedded&v=zock4KPjWCQ)
- Shotter, J. 1993. *Conversational Realities: Constructing Life Through Language*. London: Sage.
- Shum, S. B. 2007. "Hypermedia Discourse: Contesting Networks of Ideas and Arguments." In *Conceptual Structures: Knowledge Architectures for Smart Applications*. Lecture Notes in Computer Science, Vol. 4604, edited by U. Priss, S. Polovina, and R. Hill, 29–44. Berlin: Springer-Verlag.
- Spender, J.-C. 2005. "An Overview: What's New and Important about Knowledge Management? Building New Bridges between Managers and Academics." In *Managing Knowledge: An Essential Reader*, edited by S. Little and T. Ray, 127–154. London: Sage.
- Stewart, J., and S. Sambrook. 2012. "The Historical Development of HRD in the UK." *Human Resource Development Review* 11 (4): 443–462.
- Titscher, S., M. Meyer, R. Wodak, and E. Vetter. 2000. *Methods of Text and Discourse Analysis*. London: Sage.
- Tomlinson, J. 2007. *The Culture of Speed: The Coming of Immediacy*. London: Sage.
- Trehan, K., and C. Rigg. 2011. "Theorising Critical HRD: Complexities and Contradictions." *Journal of European Industrial Training* 35 (3): 276–290.
- Walton, J. 1999. *Strategic Human Resource Development*. London: Financial Times/Prentice Hall.
- Walton, J. 2003. "How Shall a Thing Be Called? An Argumentation on the Efficacy of the Term HRD." *Human Resource Development Review* 2 (3): 310–326.
- Wenger, E. 1998. *Communities of Practice: Learning, Meaning, and Identity*. New York: Cambridge University Press.
- Wodak, R. 2004. "Critical Discourse Analysis." In *Qualitative Research Practice*, edited by C. Seale, G. Gobo, J. F. Gubrium, and D. Silverman, 197–213. London: Sage.